

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—ON 'ASSOCIATION'-CONTROVERSIES.

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THE history of the psychological doctrine, named familiarly the Association of Ideas, has now been fully given by various writers, the latest and completest summary being the article by Prof. Croom Robertson in the *Encyclopædia Britannica*, vol. ii.

Like all the higher generalities of mind, these laws need not only to be verified by facts, but to be guarded by proper language, a matter of no small difficulty considering that we have to rely upon terms of common life wholly unsuited to such lofty applications.

By Association has always been understood in a general way, that the recall, resuscitation or reproduction of ideas already formed takes place according to fixed laws, and not at random. The assigning of these laws was the first contribution to a science of the human intelligence; while the ultimate shape given to them, whatever that may be, will mark the maturity of at least one portion of that science.

The name further implies that the mental reproduction is ruled by certain assignable principles of connexion or relationship between our mental elements, such that the

one now present restores another not present, yet related according to one or other of the supposed relationships. Thus a word recalls the thing named, by a law of association founded on the frequent concurrence or proximity of the two in the consciousness.

The classifications of these supposed bonds of relationship among ideas are various, and need not be repeated further than to say that two relationships have survived in nearly every classification : I mean Association by Contiguity, and the law of Similars or Similarity. These have a commanding importance in all the schools of Associationists. Contrast is also admitted as a reproductive force, but, however viewed, is unable to take the same rank as these others. I shall advert to it presently.

After a survey of the leading controversies that have clustered round these laws, I mean to devote a considerable space to the problem now uppermost among psychologists, as connected with the terms Attention and Apperception ; taking for the text Wundt's recent handling in his work on Logic. The settlement of this problem unavoidably re-acts upon all the other controversies.

I. The Terminology of Association.

This subject is included in Hamilton's elaborate Note, in his *Reid*, on the history of ' Association '. His objections to the main word itself are (1) that it implies Co-existence, or a connexion between co-existences already known, and (2) that it supposes a bilateral and equal correlation. Also the words, Chain, Concatenation, Series, Train, Movement, are each more or less unsuitable as the leading term for the various operations to be comprised under it. On the whole, Hamilton thinks that "as among the earliest, so perhaps the *best* terms for the process of reproduction are to be found in Suggest, Suggestion, Suggestive, Co-suggestive, with their conjugates". The metaphor originally perceptible in these words has now disappeared.

Undoubtedly any appropriateness in the term Association is confined to the law of Contiguity, under which the companionship of the related ideas is at its maximum of fulness ; seeing that the occasion of their coming together by a process of resuscitation is their being more or less frequently together previously. In Similarity, the resuscitation is not preceded by any previous companionship : the two members that have come together, as a consequence of their resemblance, may have been at the greatest distance from each other in our former experience. Hence, for Similarity,

the word Attraction would be the most apposite, while unsuited to Contiguity.

II. Whether, or how far, the prevailing enumeration of the laws of Association exhausts the powers of Intellect?

This is to be the final question of the paper; and it is adduced here with a view to a partial clearance of the way.

I say, then, that no enumeration of these laws expresses everything that is properly included under Intellect. For, in the first place, it is conceded on all hands, with mere variety in the statement, that Discrimination is a fundamental property of our intelligence, quite as much as any process that can be referred to laws of Association; it comes with the earliest germs of mental life, and accompanies it unceasingly to the last. It plays a part in the formation of the ideas, images or elements that are pre-supposed in Association. (See Hamilton's *Reid*, p. 243, n.) Unless it be Contrast, none of the commonly assigned associating principles expressly recognises it; while any of the received definitions of Contrast must be greatly widened to embrace the operation in all its breadth.

I hold, then, that, in any complete view of Intellect, Discrimination must be ranked as a primary attribute; while it is the business of Psychology to trace its consequences to the uttermost.

In the next place, the law of Contiguity, if defined as a power of associating into one mental group *two* or more discrete members, is not wide enough. The intellectual property that it expresses is equally operative in the formation and the persistence of the ideas themselves. In all probability, the simplest idea is already a complication; and its parts are bound into a mental unity, or whole, by the force underlying contiguous adhesion. But even if this be not so, repetition, continuance, attention—the circumstances that operate in maturing our strictly contiguous growths—are needed to make the simplest idea self-subsisting, as the idea of a sweet or bitter taste, a smell, a soft touch, a melodious sound, a colour. It is common for writers on Psychology to treat of the formation of the idea before entering upon the associating principles; this is simply an expository convenience. The state of the fact is admitted by Mr. Sully, when he assigns the very same conditions of reproduction to single images and to the linking of these in composite groups by contiguous adhesion. There is, in truth, but one law at the foundation of this reproductive process; but as the term Association is inapt to express the self-subsistence

and reproduction of images, another term is desirable. In other words, the process of converting the Sensation, or primary Impression, into the Idea, supposes the very same psychical force as that expressed by the law of Contiguity.

III. Is Contrast to be regarded as a distinct and independent law of Association?

Contrast is a comparatively rare and exceptional bond of reproduction. We cannot make six transitions of thought without involving the other two laws—Contiguity and Similarity, but we may be hours and days without acting upon Contrast. Hamilton and others, including Lotze, regard the relation of contrariety or contrast as equivalent to correlative parts of the same whole. A much bolder use of this explanation is made in dealing with the question next to be considered, and I do not discuss it here. I merely remark that while co-relatives, as light and dark, up and down, virtue and vice, readily suggest each other, I feel no difficulty in referring the process to the other laws of the mind. Lazarus suggests conjointly Dives, Abraham's bosom, and the place of insufferable heat; and though one of the three links is of the nature of a contrast, yet in that too probably Contiguity is the operative resuscitating bond.

IV. Whether Contiguity and Similarity may be reduced to one statement?

This is a far more serious consideration. Various attempts have been made to merge the two in a single principle. Hamilton, in the *Reid*, refutes some of these attempts, and affirms as ultimate the two principles—Repetition, under which he places Similarity, and Redintegration. In the *Metaphysics* (Lect. xxxi.) he holds that the two laws of Simultaneity and Affinity are carried up into unity, in the higher law of Redintegration or Totality.

According to Lotze, Similarity and Contrast are associations of impressions that are either parts of a simultaneous whole or parts of a successive whole. So that with him, as with Hamilton (in the *Metaphysics*), the concurrence of parts of the same whole is the ruling principle of reproduction, explaining alike Contiguity, Similarity and Contrast.

I must, therefore, make some remarks upon the method of regarding the entire compass of Association as the revival of a whole or totality on the presentation of some part of that whole. Such cases no doubt exist. After we have been familiarised with any complicated object, made up of definite parts, as an animal body, or a machine, when we

see one of the parts or members we are reminded of the entire body or machine. It is thus that Owen reconstructed extinct animals from a few bones. Nay, further, any loose collection or aggregate, if it is persistent and familiar, will be brought to view on our seeing one of the individual objects: as pictures in a gallery, or books in a library, or members of a household. All such would be ordinary examples of the law of Contiguity. But that law is not dependent for its operation on the objects being either united in an organised body, or made up into a grand whole. I imagine that the essence of the law is to couple each thing with the one standing next, and therefore succeeding to it in the view, and to have no regard to the multiplicity needed to make up a collection. The process is not in a state of suspension till we can bring up a sufficient number of things to make a recognised bundle or whole. To say that when I have learned to connect the English word 'king' with the Latin 'rex,' I am proceeding from a part to a whole is to stretch the meaning of part and whole beyond all usage; to introduce into the conditions of Association an alien circumstance, something never taken into account as a condition of memory. We explain a failure in effective association, by want of frequency, want of attention, or want of plasticity at the time; not by want of some grand total or collection to place the thing in. The most vagabond or isolated fact can be associated if there be any one obtainable handle. Association needs two things, and needs no more; yet every assignable couple is not necessarily a whole. I could learn half a sentence without going further. If I were to complete it, the sense would undoubtedly be a help to the memory, but would not vitiate the association of the incomplete half.

More abstruse is the question whether Similarity can fall under Contiguity in any mode of stating it. Of the various attempts to make this resolution, I will advert to the two most recent, the one by Mr. Ward, and the other by Mr. Bradley. For my own part, I still adhere to the essential separateness of the two principles; for although they concur more or less in actual working, they are the starting-points of widely different mental movements: the one class going out in the direction of routine or use and wont, the other leading to new assemblages of ideas in such forms as classes, generalities, imaginative comparisons, strokes of practical invention, and so on. Prof. Croom Robertson and Mr. Sully concur in the recognition of their distinctness.

The position of Mr. Ward, as well as of Mr. Bradley,

involves the absolute denial of such a state of mind as the consciousness of agreement. Now in cases of extreme remoteness of the objects brought together, there is a burst of excitement, which I have often called the flash of similarity, and which Mr. Ward treats as a pure fiction. The great classical instances of discoveries of generalisation, such as the Newtonian fetch involved in rising to universal gravity, cannot, I consider, be received by any mind in the same terms, and with the same emotion as an ordinary routine train of contiguous association; for example, the phases of the moon as they have always impressed mankind. In like manner, the great strokes of identity in the poetical comparisons of all ages give us an agreeable surprise, part of which is due to bringing together for the first time things never supposed to be like but, when once brought together, found capable of illustrating one another.

The flash of a great discovery of identification is one extreme of the workings of Similarity. The other extreme is equally important in its bearings on the present question; I mean the consciousness of identity without the power of resuscitation, a fact as energetically denied by Mr. Bradley as the other by Mr. Ward. My contention is, that times without number we are in this position, namely,—that of something seen, or heard, or mentioned, we remark, 'I have seen or heard that before, but I cannot tell where or when'. This is a fact; and is surely different from the state implied when I say 'That's new to me,' 'I never saw or heard that before'. Recognition or sense of identity, without the power of recall, is the extreme instance of Similarity bereft of the aid of Contiguity. The previous impression, whose likeness to the present gives us the sense of recognition or repetition, is too feebly associated within itself to start into life again. That, to my mind, is the obvious rendering of the fact. A little more familiarity, in the first instance, would have strengthened the contiguous association between the parts of the resembling object and between it and collateral circumstances of time and place, and the result would have been, not a bare sense of identity with something unknown, but an actual resuscitation of the whole fact in its fulness and in its connexions with other things.

The feeling of recognition or identity has a still wider sweep in assuring us that a train that we recall is accurately recalled. Often we have some misgiving lest we may not have recovered the precise series of particulars that we formerly knew; such misgiving is generally right, and leads us

to try again till we have corrected the mistake, and feel satisfied that we are at length correct.

Let me next advert to Mr. Bradley's view of the consciousness of identity without recovery of the identified image. He says: "If anything is brought up which suggests agreement, then this must involve what is called contiguity. For apart from such contiguity there would be nothing to recognise." But I humbly think this is to mis-state the order of occurrence. We do not first bring a thing up, not knowing whether it is like or not like, and then examine it to see if there be any likeness. Of course, this would involve Contiguity, and an occult principle besides, namely, a power of bringing up on suspicion, without anything to go upon at all; a mere tentative restoration, to be verified after it is brought into full view. There is no such power as this, so far as my knowledge goes. If something present to the view recalls a past thing like it, it is because of the felt resemblance. However we may express it, this is the order of proceeding. We have laid up in our previous experience some fact, appearance, notion, image; we, at the present moment, have in view some fact that was never in contiguity with the former but possesses a certain amount of resemblance to that: the immediate consequence is that the previous fact is recalled; the stroke of recall being, as it seems to me, simple and ultimate, and not resolvable into any roundabout process or succession of mental movements.

Mr. Ward's explanation of similarity in diversity is the easiest to state. His opinion is that when *abc* recalls *aby*, there is no more similarity than when *abc* recalls *def*. Now whether there be more or less similarity is scarcely the point; there is similarity in both to the extent of the common element *ab*. But there is certainly a difference in the two situations, a parting of the ways, with the most widely different results. And even in the immediate act there is an assignable difference. The combination *abc* recalls the former residua of *abc* that were in contiguity with *def*: there is no halt or hesitation in the matter. But when it is a question of *abc* bringing up *aby*, aggregates that were never in contiguity before, there is a new condition present. For, just as the *ab* in the one group tends to strike into the previous trace of *ab* in the other, the *x* in the first works by similarity on its own account, and tends to strike into a previous residuum containing *x*; and it is an open question which one of three courses will be taken, the recall, namely, of *aby*, or of a group *nox*, or of nothing at all. The mind has a new mode of consciousness under this situation; we

never confound it with the recall of *abcdef* at the instance of *abc*. It is a matter of psychological interest to ascertain the circumstances favouring the operation of similarity under diversity in cases involving important results; seeing that there is a cause of obstruction in the fact of diversity—an obstruction often so serious as to render the recall a matter of doubt and uncertainty. In all this I am fully borne out by Mr. Sully. (See *Outlines of Psychology*, p. 268.)

V. Whether Association can stand as one member in an enumeration of Faculties, such as those of Locke, Reid, Stewart, Hamilton?

It is not difficult to show that the Association of Contiguity is the greatest part of what is usually called Memory; while Similarity is a further aid. Moreover, that Similarity, assisted by Contiguity, explains the ordinary reasoning processes, as designated under Deduction and Induction, seems to me to admit of very little doubt, but I defer the consideration of it to the handling of the final topic of this paper. The placing of Association in the list of Intellectual Powers by Stewart has been abundantly shown to be tautological.

VI. How should Association stand in reference to the great problems of Philosophy: the theories of Space, Time, Causality, Substance and the like?

On referring to the recent work of Professor Ferri upon Association (see *MIND* viii. 294, x. 124) I find that with him Association-theories are tested mainly by their bearing on his conclusions regarding these problems. His induction of the laws from the facts of our intelligence, apart from such questions, is, I think, extremely perfunctory.

We are, at this moment, in the midst of a conflict of views as to the priority of Metaphysics and Psychology. If, indeed, the two are so closely identified as some suppose, there is no conflict; there is, in fact, but one study. If, on the other hand, there are two subjects, each ought to be carried on apart for a certain length, before they can either confirm or weaken each other. I believe that, in strictness, a disinterested Psychology should come first in order, and that, after going on a little way in amassing facts, it should revise its fundamental assumptions, and improve its language and definitions: and, when so revised, should resume consideration of the wide field of mental facts of the neutral or disinterested kind—those that deal with practical applications rather than with the metaphysical groundwork. After a few further strides, we might come back again to the founda-

tions, and so on, alternating between the two lines of research, yet insisting on their being conducted independently. This is necessary in order that we may not fall into a circle. It is said, for example, that if we embark on the promiscuous field of mental facts, with a bad Metaphysics, that is, with wrong notions as to External Reality, Cause, Substance, and so on, all our results will be vitiated and worthless; nevertheless, I do not see any mode of attaining a correct Metaphysics until Psychology has at least made some way upon a provisional Metaphysics, which it returns after a time to rectify and improve. (On the relations of Psychology to Metaphysics, see in *MIND*, Vol. viii., the Editor's opening article and Mr. James Ward's first article entitled "Psychological Principles".)

Psychology imperatively demands a well-defined vocabulary. The ultimate notions of the science must be free from ambiguity; but to express ultimate facts with precision, and to decide what things are ultimate, constitute a laborious part of any science, most of all of mind. The process of see-saw is eminently called for here. We go on a certain way upon given definitions; we find them open to exception; we go back and correct them, and proceed again, until some new flaws are discovered. But to stay debating ultimate questions, before making any forward movement at all, is a device that may be handed over to the Committee for arranging the debates in Pandemonium.

As regards Association in particular, nothing can be more vital than a correct mode of stating and understanding the mental elements or units that enter into the associating operations. The Impression, Sensation, Presentation, Perception, Idea, Image, Trace, Residuum, Representation, Memory, Recollection, must all be properly reduced to distinct expression, and rendered free of ambiguity, before we know what we mean by Associative Reproduction, or Suggestion.

The starting-point of the clearing operation evidently is to distinguish the Sensation from the Idea—the state of mind under full actuality from the trace, residuum, survival and reproduction of that when the actuality has ceased: What is my precise mode of mind in surveying a fine prospect, and what is that other mode when I am remembering it? Nor is this by any means a very simple determination. For what we choose to call sensation, presentation or actuality, is already a mixed mode, a product of associating forces. What I now see, I may have seen before, and that previous seeing combines its results with the present view. Even

if the scene is quite new, its elementary parts are not new ; and old impressions of hills and woods and streams have an influence on my present impression ; so that even the sensation is not a pure or unmixed element to begin with. Then comes the definition of the Idea, or whatever name we choose to give to the persistence and reproduction of the scene as an effect of memory. How far does this mental reproduction correspond to the original, and what are its essential differences, drawbacks or points of inferiority ? When we speak of recalling a prospect to the mind, we must speak with due allowance for the difference. For some purposes the image is as good as the original ; hence we get into a way of speaking of the two in the same terms, or as if there were no difference at all. For other purposes, the difference needs to be accentuated, instead of being slurred over. No theory of Association can be sound that mistakes the character of the mental reproduction, to which Sensation and Association jointly contribute.

Mr. Bradley's criticism of Association fastens on this part of the case. Freely allowing that there are facts corresponding to the two chief laws, he objects to the ways of stating these as absurd and self-contradictory. For example, as regards Contiguity, he says, "What was contiguous is now non-existent, and what is re-instated has *never* been contiguous". This comes of his putting an interpretation upon the meaning of re-instatement that nobody ever held, but which no doubt should be barred out by rigorous precision of language. So severe, indeed, is Mr. Bradley's view of re-instatement, that he will not allow a second view of the actual thing to be called re-instatement. If I look up to-night at a starry constellation, I might be weak enough to say that I was repeating an old impression to the letter. Mr. Bradley says No. I cannot repeat a yesterday's prospect ; yesterday has passed, and cannot be lived over again. To-day's experiences are to-day's, and these only.

I am not aware that any psychologist has guarded the statement of Association to this degree of nicety. I quite admit that there are circumstances that make it occasionally proper and desirable. Let me, therefore, learn from Mr. Bradley how to surmount the difficulty and fence the contradiction. He states the law of Contiguity thus :—"When elements have co-existed, they tend to be connected". And again—"Mental units which have co-existed cohere". Now this may be all very safe, but it has the defect of vagueness. To make it really useful there would be needed, first, some specification of the very general words 'element' and 'unit' ;

and, next, a more particular unfolding of the consequences of being 'connected' or 'cohering'. It is as if a chemist should say of combustion, that a red hot coal tends to become connected with the oxygen of the atmosphere.

Mr. Bradley's view of what rises up to the mind under Association is the embodiment of his Philosophy of the Real. It is, that *particulars* can never be associated, and that what is reproduced is *universal*. Now with his view of particularity (which is not shared in by anybody else that I know), this must be the case. A particular experience is the experience of one moment of time, and cannot be repeated in fact; for the 6th day of the month can never be the 5th. I quite agree with him that, in his sense, a single instance as such cannot be retained by the human intelligence. I further agree with him that seldom at any stage can a fact be retained without something that we may call mutilation, but the precise mutilation is a matter for inquiry. It may be a mutilation that gives generality or, if you prefer it, universality, but it may not operate in that way.

In common parlance, we should say that our knowledge of a concrete thing is improved by repetition, and attains its very best when we have viewed it times without number, so as to detach the picture from special dates and circumstances. This is the particularity of all our familiar surroundings; it does not make the objects general in any received sense of the word; they are still looked upon by us as particulars, and when we conceive them in idea, we do so with all the more vividness from the iteration and the absence of reference to special moments of observation.

Thus we seem to sacrifice an important distinction through Mr. Bradley's use of the words 'particular' and 'universal'. My memory or idea of a particular event contains the reference to the date or moment of occurrence, and to all the surroundings of the actual experience. The idea must still be shorn and mutilated; it cannot bring me back to the reality, and it must incur all the loss of imperfect mental cohesion. But it, nevertheless, presents itself as the image or residuum of a real event marked off by date and circumstances from every other event, and thus rendered individual. To call such a resuscitation 'universal' is a new employment of the word, and would lead to very inconvenient results. I take two examples to show how the term is commonly understood in science. One is 'universal gravitation,' where the meaning is the highest attainable generalisation of a natural power, the last of a succession of gradually ascending generalities. When we have generalised one step after

another, we call the final generality 'universal'. The second example is the controversy of Nominalism and Realism : called in the schools the theory of Universals. Here the universal is opposed at once to the concrete and particular, and gradation is not implied. But neither of those senses, at bottom the same, coincides with Mr. Bradley's 'universal'. The contrast of the Sensation and the Idea, the original concrete experience and the product formed by recalling that experience through association, is one of the most important contrasts in Psychology. For one reason already given, the particular and the universal does not express it ; while the attempt to employ these terms for the purpose would destroy their fitness for their more usual meanings, and especially for the meaning of singular and general. If I call my actual observation of the Dungeon Ghyll 'particular,' and my recollection of it 'universal,' I have no terms to express a waterfall in general, still less for terrestrial gravitation, least of all for universal gravitation.

Our difficulty then lies in this. An idea may be the idea of an absolute individual in all its clothing of individuality ; even when existing out of its time, and present only as a recollection, it retains its reference to the moment of its occurrence, and, so far as that goes, it is no less particular than the actual sensation was. Of the various attempts to express the real contrast, perhaps the most suitable are the metaphors 'original' and 'copy,' 'sound' and 'echo'. There is a propriety also in the word 'faded,' as opposed to fresh and first-hand. Something may be said for Mr. Bradley's 'mutilated' reproduction, implying, as it does, a failure in the pristine accuracy of the lineaments. The defect of the term lies in suggesting distortion and loss of identity ; a preferable metaphor would be 'impoverished,' as showing, not distortion, but simply the inferiority in fulness of the picture to the original.

All this, however, implies that our examples are taken from the presentations of the higher series, as embracing the complexity of the outer world. No imagination can reproduce a visible scene in all the fulness of its lineaments, and in all the brightness of its illumination. But in the wide range of our acquisitions are to be found instances where we reproduce an original exactly, as in mechanical processes. I can learn the words of a language precisely as they are presented by my teacher ; I can copy him to the life : there is no loss whatever. Again, we often begin upon ideas, and couple these from the first. In point of fact, we must accommodate the description of the Idea to the cases.

Indeed without a detailed psychology of Association, I do not see how we can arrive at just definitions of the fundamental terms Impression, Sensation, Actuality, Reality, Presentation, Perception, Idea, Representation, Thought.

VII. What circumstances are proper to be included with Association as essential accompaniments of its work?

We cannot fully state the laws of Association without certain conditions of their operation, or certain co-operating influences of a non-intellectual kind. Both the Feelings and the Will play a part in the associating processes at every stage.

Thus, as to Contiguity. The rate of coherence of two impressions is known to depend partly on the intensity of the consciousness on the occasions when the two are in company, and partly on the endurance and repetition of the concurrence. Hamilton's law of Preference is simply the fact of conscious intensity due to special interest.

There are, as it were, two distinct moments to be studied in giving an account of the associating process. The first is the original placing of the elements together, and the supplying of the conditions requisite to their adhesion. The second is the consequent resuscitation, which, too, has its conditions, over and above the foregoing. An association between two elements may be to all intents and purposes sufficient for obtaining the revival of the second on the presentation of the first, yet the revival may not occur. The state of mind at the time may be either favourable or unfavourable to the recall of a past impression or idea; and the determining influence at work may be due to the feelings or to the will. Hence the theory of Association is not complete without specifying the accompanying conditions, both for the moment of primary adhesion and for the moment of associative recall.

The circumstances that give conscious intensity are not difficult to assign. The word 'Attention' in its commoner meaning,—as a voluntary prompting to concentration of mind, expresses a great deal, but not everything. There is concentration from mere excitement, painful and pleasurable, as distinguished from the attention under the will, although the two shade into one another.

All I am contending for just now is that, with the associating forces, we should include the emotional and volitional influences that are inseparable from their working and that must be taken account of according to their degree in each case. These forces do not of themselves make the Associa-

tion, any more than heat and light enable a plant to propagate its kind; they are but the essential accompaniments: without being the fact, they are conditions of its full realisation.

The concluding head will involve a more specific consideration of the present topic.

VIII. The final question of this paper relates to the insufficiency or shortcoming of the principles of Association, as now qualified, to explain the rise and succession of our thoughts, in other words, the various operations of the Intellect.

This leads me to examine the new position occupied by Prof. Wundt, who regards these principles as insufficient to account for the higher intellectual processes. Even if Prof. Wundt's name were not enough to secure a respectful consideration of his views, we have an additional motive, in the declaration of M. Lachelier, his expounder in the *Revue Philosophique*, that in France, at the present time, neither English empiricism nor pure Kantianism can give satisfaction, and that a reconciliation of the two is earnestly called for.

I leave it to the Kantians, old or new, to say how far Prof. Wundt's assumptions coincide with Kant's. I must endeavour to state what they are, and to criticise them, regarded as supplementary to the laws of association.

Wundt recognises in the mind two entirely distinct sets of laws—lower and higher. The lower are laws of the senses and the brain, and embrace sensations and intellectual groupings under ordinary association. They make up the department covered by the psychophysical researches of the German experimental psychologists.

The laws of Association, as prevailing in this lower region, are given by Wundt without any essential variation from the more usual renderings. His scheme is—

(1) Simultaneous Association.

- (a) Associative Synthesis.
- (b) Assimilation.
- (c) Complication.

(2) Successive Association.

While thus taking as his main⁷ distinction the Simultaneous and the Successive, Wundt admits as valid the reduction of the laws of Association (as by Herbart) to the two—Similarity and Contiguity; Contrast being a case of

association by Similarity under the influence of fluctuations of feeling.

As the course of associative reproduction is hindered by active attention and logical thinking, we must give ourselves up passively to the play of representations, if we wish to get persistent and coherent association. The flow of representations in dreaming and madness offers the best field of observation for the study of associations as such. In the ascending flood of ideas of the insane, we can sometimes follow step by step the process whereby logical thinking gradually undergoes dissolution by the increasing dominance of association. Hence the attempt to derive logical thinking from association is open to suspicion.

In Wundt's conception these laws are afflicted with the incurable disqualification of *passivity*, which restricts their unassisted workings to the lower forms of sensation and memory. Instead of pushing them to the explanation of the higher faculties of reasoning and imagination, as the English associationists profess to do, he considers it necessary to take an entirely new departure, to lay down a principle of Intellectual Activity, with laws of its own and a foundation of its own; locating it in a purely spiritual region of the mind, which has nothing in common with the physical constitution of the senses and the brain. This principle of activity he names Apperception, and thus expounds. In vision we are aware of the wide distinction between the central point of the retina and the surrounding portions stretching away to the circumference. It is in the centre that our visible discrimination reaches the utmost pitch of minuteness; hence to observe a given object thoroughly we turn upon it this visual centre. Such, says Wundt, is the difference between apperception and passive or listless consciousness. Apperception is thus nothing more than attention at the highest pitch of concentration; it is a thing of all degrees from bare consciousness up to the full strain of stimulated activity. Now as such activity is most usually an effort or effect of will, Apperception is another name for will applied to the operations of thought.

In mere association, apperception is not absent, but it is of a more primitive kind than in what is called distinctively the "apperceptive" combination of representations. The activity of apperception, in the lower association, is directly determined by the "psychical stimulus" of a representation, the frequency of its repetition, &c.; while, in the higher kind of apperceptive activity, there is an act of choice. Hence apperception is in the full sense volitional, and not

merely a kind of germ of volition. In apperceptive combination, however, association is still at work. The apperceptive activity makes use of the material furnished to it by association; but the laws of Association indicate only the possible combinations that are at the disposal of consciousness; what combination is actually carried out is decided by the act of apperception.

As direct sense-excitation furnishes consciousness with all its materials, so association preserves sense-impressions to be acted on by apperception. We may thus distinguish "passive apperception" (determined by stimuli, &c.) from "active apperception" (determined by an act of choice). It is this last alone that properly deserves the name. The laws of Association are most easily observed when apperception is passive; the laws of the apperceptive activity itself, when it is active. The distinction applies to successive as well as to simultaneous groupings of representations. *Memory* provides consciousness with materials by holding representations in an associative bond; *recollection* is the act of apperception that decides which of the associative representations shall actually come into the view-point of consciousness.

In following out the detailed illustration of the foregoing positions, Wundt presents us with a two-fold classification of thought-combinations—the *simultaneous* and the *successive*. Under the first falls the formation of concepts, which will suffice as an example of his proceeding. A concept, he says, is a single representation that stands in the place of a number of other representations of its kind; in other words, that is "apperceived" as standing for a whole class of representations. The formation of concepts is specially related to "assimilative" associations. Concepts do not result (as associationists have tried to show) from the dropping of all but the common elements in a number of representations, but from the voluntary selection of some specially striking element, which may not be common, or may not be characteristic. Thus the concept may be defined "according to its psychological origin," as "the completed fusion, through active apperception, of a ruling individual representation with a series of representations that belong together". Afterwards there occur the following additional changes—(1) obscuration of the representations bound up with the dominant element; (2) obscuration of the dominant element itself, and substitution of the spoken, together with the written, word.

It is under "*successive* thought-combinations" that pro-

positions or judgments are included ; the apperceptive movement being adapted to the difference of the case.

For the higher functions of intellect, then, the trains of association must come under the pressure of the will, as attention. The will can quicken up the associations into living power. By fastening the attention upon an object of thought, the assimilative force is quickened and resemblances more abundantly evoked ; the poet obtains his metaphors by severe concentration of mind upon the matter that he wishes to illustrate. So, imperfectly-formed bonds of contiguity may be rendered suggestive by means of intense application of thought to the present member of the couple ; as when we have forgotten someone's name, and keep cogitating on the image of the person till we recall it.

Besides thus intensifying the forces of association, beyond their natural power in the passive mood, the apperceptive concentration can modify and work up the trains of thought ; it can combine them for some purposes, and divide or analyse them for others. The processes of logic or reasoning, of imagination or art, of moral guidance, of working for ends, involve the double power of association proper and the control due to apperception. All these processes are copiously exemplified by Wundt in accordance with his main thesis.

And now, as apperception is another name for will working in the sphere of the intellectual trains, and as will supposes motives, the sources of apperception lie in the region of motives. But with Wundt, the motives of all our higher thinking transcend the sphere of the senses and the brain, the material organism and its functions. No doubt a certain class of motives is allied with this lower part of our being ; there are, of course, pleasures and pains of sense and appetite, and these pleasures and pains must be often operative as stimulants of attention, and must even intensify and control the trains of association. Nevertheless, all such motives are limited to the inferior and merely animal objects of thought and pursuit. They exemplify a sort of mechanical or physical correspondence between the intensity of the feeling and the intensity of the action, just as the pace or work of a steam-engine is related to the consumption of coal.

Apperception, on the other hand, does not follow the animal inclinations : it works under a class of altogether distinct and superior motives, regulated by laws peculiar to itself. These motives are the produce of heredity. They fall under three different classes—the logical, the æsthetic, the moral. They have their foundations in our imma-

terial soul, they possess nothing in common with the senses and laws of passive association, although the associating forces are their essential tool or instrument. The logical stimuli direct the forces to the production of reasoned truths, the æsthetic to art, and the ethical to right conduct. It is in this region alone that free-will possesses any meaning. There is a determinism in the lower region which is as mechanical as you please: the determinism of the higher or apperceptive region is a psychical determinism; in it there is no constant relation between energy of motive and energy of action. The laws of apperception are thus very peculiar, and the mode of discovering them is peculiar. Ordinary introspection is unequal to the research. Without excluding this means of knowledge, we must devote ourselves to a study of man's history and institutions, which are the fruit of his highest elaborations, and the measure and test of his superior motives. Anthropology at large, comprising social progress, literature, language, mythology, religion, will furnish the laws of our highest motives, being the resultant of their operation during the ages that have passed.

Of the questions raised by the foregoing speculation, there are two that I must pass without discussion. The one is the immateriality of the mind in certain of its functions, a position maintained in all its nakedness, and without any attempt to get it out of the difficulties that were felt no less by Aristotle than by ourselves. How an immaterial mind can be allied with a material organism, which is the essential instrument of certain very important mental functions; how the partition of functions is made; how it is that there can be so much difference of opinion as to what is grounded in the material organs, and what subsists in the immaterial sphere,—all this is left without any palliation and need not be counterargued until something is done to surmount such obvious and weighty objections.

The other point is Free-will, which is presented in a somewhat novel shape. It has its exclusive *habitat* in the upper sphere, where the principle of proportionality of cause and effect is suspended, the smallest causes producing, if need be, the largest effects. Here too there are difficulties to be explained away. It would be requisite to adduce some unequivocal examples of this inversion of mechanical uniformity, as well as to show that in the great institutions of mankind, as society, language, religion, such inequality of cause and effect is unequivocally present. We are well acquainted, even in the mechanical sphere, with the occur-

rence of effects out of proportion to the reputed causes, as in exploding gunpowder, but we know that these are only apparent causes, and that when we get hold of the real causes, proportionality is rigorously maintained.

Passing those two questions, I propose to remark upon the bearing of Wundt's speculation upon the laws of Association properly so called. Notwithstanding the stress put upon the action of the will, he still allows that will is not everything: he does not shunt the associating links, and lay the whole stress of the exposition on the apperceptive volition. What he says as to the essential concurrence of emotion and will with the workings of association we fully admit. No associating link can be forged, in the first instance, except in the fire of consciousness; and the rapidity of the operation depends on the intensity of the glow. In like manner, the links thus forged are dormant and inactive, until some stimulus of consciousness is present, whether feeling or will. A man of scholarly attainments, with his hundred thousand linkings of contiguous bonds, will sit in his chair for hours, and bring up nothing: he need not be asleep the while; mere languor is enough to account for his intellectual quiescence.

It is with the original forming of the associating links, that education is most concerned; and the theory of education must enumerate all the circumstances that aid the process. These are partly physical, partly intellectual, partly emotional and volitional. To confine the statement to the factor of will alone, as attention, would be insufficient.

The subsequent rise or resuscitation of ideas consequent on association, is a fresh field of study. All the above-named influences are still at work, although in a somewhat different way. The practical applications are here wider. Besides the bearing on education, we have the wider consideration of the conduct and economy of the thinking powers. Over and above the original adhesion, there are circumstances that assist in the reproduction, and make it a success or a failure. Chief among these is the power of the will, but not to the exclusion of other influences. Even the addition of emotional excitement, which of itself accounts for a great deal, that is, apart from moving the will, is not all. The purely intellectual conditions, under which I include the number and nature of the associating connexions at work in a given case, bear a large part in the process of resuscitation.

More particularly, as to the influence of the will in apper-

ception, everything that Wundt advances is supported by our experience. The will may make up, in some small degree, for the feebleness of a contiguous linking, partly by a more strenuous attention, but far more by the search for collateral links in aid. It may likewise favour the recall of a resembling image. But neither of those two cases represents its habitual and all-powerful efficacy; in both, the limits of its reproductive force are still narrow. The operation that represents Wundt's Apperception in its full sweep is that crowning example of voluntary power—the command of the thoughts, by detaining some and dismissing others, as they arise, and are found suitable, or the contrary. Too much cannot be said as to the importance of voluntary attention in this lofty sphere. All thinking for an end,—whether it be practical or speculative, scientific or æsthetic,—consists in availing ourselves of the materials afforded by association, and choosing or rejecting according to the perceived fitness or unfitness for that end.

When, therefore, Wundt says that association alone does not explain the higher intellectual functions, he only says what we all admit, namely, that Association needs the control of will and feelings, in order to bring forth our more important thinking products. In the absence of some degree of conscious intensity, association can no more unite ideas, or restore the past by virtue of such unions, than a complete set of water-pipes can distribute water without a full reservoir to draw from. The scheme of Wundt does not lead to the slighting of Association as a great intellectual factor. His Apperception would be nothing without it.

The point where my disagreement with the whole speculation now adduced begins, is the drawing of a hard and fast line between the lower and the higher workings of Association. To me the word Apperception, as employed by Wundt, is unnecessary and unmeaning. All that it is intended to convey is much better expressed by our old phraseology. If it is another name for the voluntary control of the thoughts it is superfluous and therefore mischievous. It leads us to suppose that there must be some distinct meaning to correspond, and we find there is no such meaning. There is an important line between the random course of the thoughts,—in reverie, in dreaming, in insanity, and even in the sane when they give way to casual associating that has no end—and the regulated thinking of a well-trained mind; but this line can be drawn much better by our old familiar phraseology than by the new coinage, as proposed by Professor Wundt.

A far more serious ground of difference of opinion is the

treatment of Association, as almost exclusively an affair of motives. This point of view is not special to Wundt. It is set forth with great clearness in the following passage in Professor Adamson's review of Mr. Sully's *Psychology*, in *MIND* ix. 438.

"Each separate fact of conscious experience stands out momentarily from the vast complex of the individual mind, and, as one says, receives so much attention, but it is always accompanied by this complex, and the question, what determines the train of thought, what causes us, as we say, to think of something else, is really the question what causes attention to include this or that at the moment. The motives are infinitely numerous, and vary indefinitely in character in successive stages of individual development; for the most part, indeed, they are distinctly what would be described as logical; but the essential fact is the movement of attention as expressed in the view taken of the part more immediately under consideration."

That the motives to attention are an important part of the course of thought, I freely admit. But to call these motives infinitely numerous seems to me an exaggeration that passes the limits of a figure. If the human mind possessed any constituent fairly describable as infinitely numerous, it would, as a study, be entirely beyond our limited capacity. But our motives, for all purposes whatever, are anything but infinite in number; while those that operate in directing the current of thought are only a fraction of the whole. Nay more. Whatever be the total of such motives, their mode of operating reduces itself to a few understood particulars, which have been already adverted to in the course of this discussion.

If there be any part of the mind open to the description of being "infinitely numerous" in details, it is Association in its characteristic feature of linking mental elements together. We can count, in a rough way, the names of a language; and using the estimate as a datum, we can prove beyond dispute that the distinguishable links of associated particulars in the mind of an educated man must greatly exceed one hundred thousand. I doubt if the most liberal calculation of motives would furnish one-hundredth of this number.

Let us consider the actual case of the acquisition of a language, with its thousands of couplings of words and phrases, and consider how much motives have to do with it. In the first place, what number of motives are at work first and last? I imagine they could be easily counted up, whatever way we may look at them. The wish to open up a new avenue to

information and interest is of itself comprehensive enough: we could not multiply motives without putting down, as distinct items, every occasion when we desired to learn something or to talk with somebody. But Psychology would never condescend to such particulars as this: it would serve no end. During the whole dreary process of mastering a foreign tongue, we are aware of only one or two recurring motives; while we are painfully conversant with the steps of the associating process, by which we add one group after another, to our adhesions of name with name. Our interest lies in quickening this process by every known means—motives included. The motives make one and only one condition: they are the same throughout. The common devices for promoting the requisite adhesions are not stated in terms of the motives, but in terms of the laws of association. A certain force of attention is required, and this comes under motive; but there is a further regulation of the manner of presenting the names and objects to be united. The professors of artificial memory work not by motives, but by a skilful manipulation of the matters to be recollected. The topical memory of the ancients did not depend on motives.

What I apprehend is meant by the infinity of our motives, is the sum-total of all the *applications* that we make of our resources as made up by association. These applications are of course very numerous, but they admit of classification under a limited number of heads—as simple memory, perception, reasoning (in all its various phases), imagination and, Wundt would add, conduct. I do not doubt that association might be described under these various kinds of intellectual working; but I think a great deal would be lost, and nothing gained, by regarding simply the outcome of the associating processes, and saying nothing of the immense fabric that has to be reared before there can be any outcome. We should trace out, in detail, both supply and demand in our intellectual work. I have not yet discovered any better method of expounding the laws of Association than by combining two arrangements: first, the systematic view of mental elements, as they become associated together; and second, the applications of these products to our various utilities.

II.—THE PERCEPTION OF SPACE. (II.)¹

By Professor WILLIAM JAMES.

3. *The Synthesis of the original sensible Bignesses.*

IN previous sections I sought to show that the primitive experience, which lies at the bottom of our knowledge of space, is the quality of bigness or extensiveness which all of our sensations possess.² I showed, moreover, that if an original sensation of extent were subdivided into parts by discriminative attention, these parts must come to be perceived, through processes of association, in definite relations of mutual position and order. I said nothing, however, of the combination of one sensible space-total with another, the inquiry to which we must now turn.

It breaks into two subordinate problems: (1) *How is the subdivision and measurement of the several sensorial spaces completely effected?* and (2) *How do their mutual addition and fusion and reduction to the same scale, in a word, how does their synthesis, occur?* I think that, as in the investigation just finished, we found ourselves able to get along without invoking any data but those that pure sensibility on the one hand, and the ordinary intellectual powers of discrimination and recollection on the other, were able to yield; so here we shall emerge from our more complicated quest with the conviction that all the facts can be accounted for on the supposition that no other mental forces have been at work save those we find everywhere else in psychology; sensibility, namely, for the data, and discrimination, association, memory and choice, for the rearrangements and combinations they undergo.

¹ Continued from MIND No. 45.

² *Consensus* is such a precious thing in the present state of psychology, that I cannot refrain from reminding the reader that in this, the fundamental and indispensable, part of my thesis, I have an ally in Mr. James Ward, whose article "Psychology" in the edition still publishing of the *Encyclopedia Britannica*, seems to me, on the whole, the deepest and subtlest collective view of the subject which has appeared in any language. *Extensivity* is Mr. Ward's name (see pp. 46, 53, of the article) for this primitive quality of sensation, out of which our several perceptions of *extension* grow.

(a) Their Subdivision.

Let us take subdivision first. How are spatial subdivisions brought to consciousness? in other words, How does spatial discrimination occur? I must reserve a general treatment of the subject of discrimination for another place. Here we need only inquire what are the conditions that make spatial discrimination so much finer in sight than in touch, and in touch than in hearing, smell or taste.

The first great condition is, that different points of the surface shall differ in the quality of their immanent sensibility, that is, that each shall carry its special local-sign. If the skin felt everywhere exactly alike, a foot-bath could be distinguished from a total immersion, as being smaller, but never distinguished from a wet face. The local-signs are indispensable; two points which have the same local-sign will always be felt as the same point.¹ We do not judge them two unless we have discerned their sensations to be different. Granted none but homogeneous irritants, that organ would then distinguish the greatest multiplicity of irritants—would count most stars or compass-points, or best compare the size of two wet surfaces—whose local sensibility was the least even. A skin whose sensibility shaded rapidly off from a focus, like the apex of a boil, would be better than a homogeneous integument for spatial perception. The retina, with its exquisitely sensitive fovea, has this peculiarity, and undoubtedly owes to it a great part of the minuteness with which we are able to subdivide the total bigness of the sensation it yields. On its periphery the local differences do not shade off very rapidly, and we can count their fewer subdivisions.

But these local differences of feeling, *so long as the surface is unexcited from without*, are almost null. I cannot feel them by a pure mental act of attention unless they belong to quite distinct parts of the body, as the nose and the lip, the fingertip and the ear; their contrast needs the reinforcement of outward excitement to be felt. In the spatial muchness of a colic—or, to call it by the more spacious-sounding vernacular, of a 'bellyache'—I can with difficulty distinguish the north-east from the south-west corner, but can do so much more easily if, by pressing my finger against the

¹ A. Binet (*Revue Philosophique*, Sept., 1880, page 291) says we judge them locally different as soon as their sensations differ enough for us to distinguish them as qualitatively different when successively excited. This is not strictly true. Skin-sensations, different enough to be discriminated when *successive*, may still fuse locally if excited both at once.

former region, I am able to make the pain there more intense.

The local differences require then an adventitious sensation, superinduced upon them, to awaken the attention. After the attention has once been awakened in this way, it may continue to be conscious of the unaided difference; just as a sail on the horizon may be too faint for us to notice until someone's finger, placed against the spot, has pointed it out to us, but may then remain visible after the finger has been withdrawn. But all this is true only on condition that separate points of the surface may be *exclusively* stimulated. If the whole surface at once be excited from without, and homogeneously, as, for example, by immersing the body in salt water, local discrimination is not furthered. The local-signs, it is true, all awaken at once; but in such multitude that no one of them, with its specific quality, stands out in contrast with the rest. If, however, a single extremity be immersed, the contrast between the wet and dry parts is strong, and, at the surface of the water especially, the local-signs attract the attention, giving the feeling of a ring surrounding the member. Similarly, two or three wet spots separated by dry spots, or two or three hard points against the skin, will help to break up our consciousness of the latter's bigness. In cases of this sort, where points receiving an identical kind of excitement are, nevertheless, felt to be locally distinct, and the objective irritants are also judged multiple,—*e.g.*, compass-points on skin or stars on retina,—the ordinary explanation is no doubt just, and we judge the outward causes to be multiple because we have discerned the local feelings of their sensations to be different.

Capacity for partial stimulation is, then, the second condition favouring discrimination. A sensitive surface which has to be excited in all its parts at once by every kind of stimulus that can be applied to it can yield nothing but a sense of undivided largeness. This appears to be the case with the olfactory, and to all intents and purposes with the gustatory, surfaces. Of many tastes and flavours, even simultaneously presented, each affects the totality of its respective organ, each appears with the whole vastness given by that organ, and appears interpenetrated by the rest.¹

¹ It may, however, be said that even in the tongue there is a determination of bitter flavours to the back, and of acids to the front, edge of the organ. Spices likewise affect its sides and front, and a taste like that of alum localises itself, by its styptic effect on the portion of mucous membrane, which it immediately touches, more sharply than roast pork, for

I should have been willing some years ago to name without hesitation a third condition of discrimination—saying it would be most developed in that organ which is susceptible of the *most various qualities* of feeling. The retina is unquestionably such an organ. The colours and shades it perceives are infinitely more numerous than the diversities of skin-sensation. And it can feel at once white and black, whilst the ear can in nowise so feel sound and silence. But the late researches of Donaldson and Hall,¹ Blix and Goldscheider, on specific points for heat, cold, pressure and pain in the skin; the older ones of Czermak (repeated later in Wundt's laboratory), showing that a hot and a cold compass-point are no more easily discriminated as two than two of equal temperature; and some unpublished experiments of my own—all disincline me to make much of this condition

example, which stimulates all parts alike. The pork, therefore, tastes more spacious than the alum or the pepper. In the nose, too, certain smells, of which vinegar may be taken as the type, seem less spatially extended than heavy, suffocating odours, like musk. The reason of this appears to be that the former inhibit inspiration by their sharpness, whilst the latter are drawn into the lungs, and thus excite an objectively larger surface. The ascription of height and depth to certain notes seems due, not to any localisation of the sounds, but to the fact that a feeling of vibration in the chest and tension in the gullet accompanies the singing of a bass note, whilst, when we sing high, the palatine mucous membrane is drawn upon by the muscles which move the larynx, and awakens a feeling in the roof of the mouth.

The only real objection to the law of partial stimulation laid down in the text is one that might be drawn from the organ of hearing; for, according to modern theories, the cochlea may have its separate nerve-termini exclusively excited by sounds of differing pitch, and yet the sounds seem all to fill a common space, and not necessarily to be arranged alongside of each other. At most the high note is felt as a thinner, brighter streak against a darker background. In an article on Space, published in the *Journal of Speculative Philosophy* for January, 1879, I ventured to suggest that possibly the auditory nerve-termini might be "excited all at once by sounds of any pitch, as the whole retina would be by every luminous point if there were no dioptric apparatus affixed". And I added: "Notwithstanding the brilliant conjectures of the last few years which assign different acoustic end-organs to different rates of air-wave, we are still greatly in the dark about the subject; and I, for my part, would much more confidently reject a theory of hearing which violated the principles advanced in this article than give up those principles for the sake of any hypothesis hitherto published about either organs of Corti or basilar membrane". Professor Rutherford's theory of hearing, advanced at the last meeting of the British Association, already furnishes an alternative view which would make hearing present no exception to the space-theory I defend, and which, whether destined to be proved true or false, ought, at any rate, to make us feel that the Helmholtzian theory is probably not the last word in the physiology of hearing.

¹ See MIND x. 399 and 577.

now.¹ There is, however, one quality of sensation which is particularly exciting, and that is the *feeling of motion over any of our surfaces*. The erection of this into a separate elementary quality of sensibility is one of the most recent of psychological achievements, and is worthy of detaining us a while at this point.

Psychologists generally have assumed the perception of motion to be impossible until the positions of *terminus a quo* and *terminus ad quem* are severally cognised, and their successive occupancies by the moving body are perceived to be separated by a distinct interval of time.² As a matter of fact, however, we cognise only the very slowest motions in this way. Seeing the hand of a clock at XII. and afterwards at VI., we judge that it has moved through the interval. Seeing the sun now in the east and again in the west, I infer it to have passed over my head. But we can only *infer* that which we already generically know in some more direct fashion, and it is experimentally certain that we have the feeling of motion given us as a direct and simple *sensation*. Czermak long ago pointed out the difference between seeing the motion of the second-hand of a watch, when we look directly at it, and noticing the fact of its having altered its position when we fix our gaze upon some other point of the dial-plate. In the first case we have a specific quality of sensation which is absent in the second. If the reader will find a portion of his skin—the arm, for example—where a pair of compass-points an inch apart are felt as one impression, and if he will then trace lines a tenth of an inch long

¹ I tried on nine or ten people, making numerous observations on each, what difference it made in the discrimination of two points to have them alike or unlike. The points chosen were (1) two large needle-heads, (2) two screw-heads, and (3) a needle-head and a screw-head. The distance of the screw-heads was measured from their centres. I found that when the points gave diverse qualities of feeling (as in 3), this facilitated the discrimination, but much less strongly than I expected. The difference, in fact, would often not be perceptible twenty times running. When, however, one of the points was endowed with a rotary movement, the other remaining still, the doubleness of the points was much more evident. To observe this I took an ordinary compass with one point blunt, and the movable leg replaced by a metallic rod which could, at any moment, be made to rotate *in situ* by a dentist's drilling machine, to which it was attached. The compass had then its points applied to the skin at such a distance apart as to be felt as one impression. Suddenly rotating the drill-apparatus then almost always made them seem as two.

² This is only one example of what I have called 'the psychologist's fallacy'—thinking that the mind he is studying must necessarily be conscious of the object after the fashion in which the psychologist himself is conscious of it.

on that spot with a pencil point, he will be distinctly aware of the point's motion and vaguely aware of the direction of the motion. The perception of the motion here is certainly not derived from a pre-existing knowledge that its starting and ending points are separate positions in space, because positions in space ten times wider apart fail to be discriminated as such when excited by the dividers. It is the same with the retina. One's fingers when cast upon its peripheral portions cannot be counted—that is to say, the five retinal tracts which they occupy are not distinctly apprehended by the mind as five separate positions in space—and yet the slightest movement of the fingers is most vividly perceived as movement and nothing else. It is thus certain that our sense of movement, being so much more delicate than our sense of position, cannot possibly be derived from it. A curious observation by Exner¹ completes the proof that movement is a primitive form of sensibility, by showing it to be much more delicate than our sense of succession in time. This very able physiologist caused two electric sparks to appear in rapid succession, one beside the other. The observer had to state whether the right-hand one or the left-hand one appeared first. When the interval was reduced to as short a time as 0·044" the discrimination of temporal order in the sparks became impossible. But Exner found that if the sparks were brought so close together in space that their irradiation-circles overlapped, the eye then felt their flashing as if it were the motion of a single spark from the point occupied by the first to the point occupied by the second, and the time-interval might then be made as small as 0·015" before the mind began to be in doubt as to whether the apparent motion started from the right or left. On the skin similar experiments gave similar results.

Vierordt, at almost the same time,² called attention to certain persistent illusions which seemed to him survivals from a stage of development when motion was felt as such, but not yet discriminated as belonging to subject or object. Such feeling, he concluded, must be the primitive and undifferentiated form of all spatial perception. The illusions in question are, among others, these : If another person gently trace a line across our wrist or finger, the latter being stationary, it will feel to us as if the member were moving in the opposite direction to the tracing point. If, on the contrary, we move our limb across a fixed point, it will be seen as if

¹ *Sitzb. der. k. Akad. zu Wien*, Bd. lxxii., Abth. 3 (1875).

² *Zeitschrift für Biologie*, xii. 226 (1876).

the point were moving as well. If the reader will touch his forehead with his forefinger kept motionless, and then rotate the head so that the skin of the forehead passes beneath the finger's tip, he will have an irresistible sensation of the latter being itself in motion in the opposite direction to the head. So in abducting the fingers from each other; some may move and the rest be still, but the still ones will feel as if they were actively separating from the rest. Vierordt's inferences may be rash, but his experiments certainly show to one who will repeat them how much more like an indecomposable *sensation* our perception of motion is, than like a constructive act of the mind.

But the most valuable contribution to the subject is the paper of G. H. Schneider,¹ who takes up the matter zoologically, and shows by examples from every branch of the animal kingdom that movement is the quality by which animals most easily attract each other's attention. The instinct of 'shamming death' is no shamming of death at all, but rather a paralysis through fear, which saves the insect, crustacean or other creature from being *noticed at all* by his enemy. It is paralleled in the human race by the breath-holding stillness of the boy playing 'I spy,' to whom the seeker is near; and its obverse side is shown in our involuntary waving of arms, jumping up and down, and so forth, when we wish to attract someone's attention at a distance. Creatures 'stalking' their prey and creatures hiding from their pursuers alike show how immobility diminishes conspicuity. In the woods, if we are quiet, the squirrels and birds will actually touch us. Flies will light on stuffed birds and stationary frogs.² On the other hand, the tremendous shock of feeling the thing we are sitting on begin to move, the exaggerated start it gives us to have an insect unexpectedly pass over our skin or a cat noiselessly come and snuffle about our hand, the excessive reflex effects of tickling, &c., show how exciting the sensation of motion is *per se*. A kitten cannot help pursuing a moving ball. Impressions too faint to be cognised at all are immediately felt if they move. A fly sitting is unnoticed,—we feel it the moment it crawls. A shadow may be too faint to be perceived. As soon as it moves, however, we see it. Schneider found that a shadow, with distinct outline, and directly fixated, could still be perceived when moving, although its objective

¹ *Vierteljahrssch. für wiss. Philos.*, ii. 377.

² Exner tries to show that the structure of the faceted eye of articulates adapts it for perceiving motions almost exclusively.

strength might be but half as great as that of a stationary shadow so faint as just to disappear. With a blurred shadow in indirect vision the difference in favour of motion was much greater—namely, 13·3 : 40·7. If we hold a finger between our closed eyelid and the sunshine we shall not notice its presence. The moment we move it to and fro, however, we discern it. Such visual perception as this reproduces the conditions of sight among the radiates.

Enough has now been said to show that in the education of spatial discrimination the motions of impressions across sensory surfaces must have been the principal agent in breaking up our consciousness of the surfaces into a consciousness of their parts. Even to-day the principal function of the peripheral regions of our retina is that of sentinels, which, when beams of light move over them, cry 'Who goes there?' and call the fovea to the spot. Most parts of the skin do but perform the same office for the finger-tips. Of course finger-tips and fovea leave *some* power of direct perception to marginal retina and skin respectively. But it is worthy of note that such perception is best developed on the skin of the most movable parts (the labours of Vierordt and his pupils have well shown this); and that in the blind, whose skin is exceptionally discriminative, it seems to have become so through the inveterate habit they possess of twitching and moving it under whatever object may touch them, so as to become better acquainted with the conformity of the latter. Czermak was the first to notice this. It may be easily verified. Of course movement of surface under object is, for purposes of stimulation, equivalent to movement of object over surface. And the exquisite mobility of the eyeball is thus shown, apart from those measuring uses we have noticed already and shall notice again, to be of immense service in promoting discrimination pure and simple.

(b) *Their Comparison and Measurement:*

What precedes is all we can say in answer to the problem of discrimination. Turn now to that of *measurement of the several spaces against each other*, that being the first step in our constructing out of our diverse space-experiences the one space we believe in as that of the real world.

If we were immovable and could only passively receive the pressure and motion of objects on our skin, without ever feeling one part of our skin with another, it is certain that we should have far vaguer perceptions of their extension and of our own form than we now possess. The differences of

vastness in the feelings of different parts would have uncorrected play. Objects gliding from one part of our surface to another would appear to change their size, as in the observations mentioned at the beginning of the paper; and we should have no certainty as to how much lip was equivalent to so much forehead, how much finger to so much back.

But with the power of exploring one part of the surface by another we get a direct perception of cutaneous equivalencies. The primitive differences of vastness are overpowered when we feel by an immediate sensation that a certain length of thigh-surface is in contact with the entire palm and fingers. And when a certain motion of the opposite finger-tips draws a line first along this same length of thigh and then along the whole of the hand in question, we get a new manner of measurement, less direct but confirming the equivalencies established by the first. In these ways, by superpositions of parts and by tracing lines on different parts by identical movements, a person deprived of sight can soon learn to reduce all the dimensions of his body to a homogeneous scale. By applying the same methods to objects of his own size or smaller, he can with equal ease make himself acquainted with their extension stated in terms derived from his own bulk, palms, feet, cubits, spans, paces, fathoms (armspreads), &c. In these reductions it is to be noticed that *when the resident sensations of largeness of two opposed surfaces conflict, one of the sensations is chosen as the true standard and the other treated as illusory.* Thus an empty tooth-socket is believed to be really smaller than the finger-tip which it will not admit, although it may *feel* larger; and in general it may be said that the hand, as the almost exclusive organ of palpation, gives its own magnitude to the other parts, instead of having its size determined by them.

The readjustment of the various retinal space-feelings to a common scale is more complex still. So constantly is the same qualitative impression of colour and form changing its magnitude upon the retina (whilst from incessant reversals of the change and tactile verifications we believe the real size of the object to be unaltered), that we end by ascribing no absolute import whatever to the retinal space-feeling which at any moment we may receive. So complete does this overlooking of retinal magnitude become, that it is next to impossible to compare the visual magnitude subtended by different objects at different distances, without making the experiment of superposition. We cannot say beforehand how much of a distant house or tree our finger will cover. The various answers to the familiar question, How large is

the moon?—answers which vary from a cartwheel to a wafer—illustrate this most strikingly. The hardest part of the training of a young draughtsman is his learning to feel directly the relative angular or retinal magnitudes which different parts of the field of view subtend. To do this he must recover what Ruskin calls the “innocence of the eye”—that is, a sort of childish perception of flat stains of colour merely as such, without consciousness of what they signify.

With the rest of us this innocence is lost. Out of all the visual magnitudes of each known object we have selected one as the real one to think of, and degraded all the others to serve as its signs. This ‘real’ magnitude is determined by æsthetic and practical interests. It is that which we get when the object is at the distance most propitious for exact visual discrimination of its details. This is the distance at which we hold anything we are examining. Farther than this we see it too small, nearer too large. And the larger and the smaller feeling vanish in the act of suggesting this one, their more important *meaning*. As I look along the dining-table I overlook the fact that the farther plates and glasses *feel* so much smaller than my own, for I *know* that they are all equal in size, and the feeling, which is a present sensation, is eclipsed in the glare of the knowledge, which is a merely imagined one.

If the inconsistencies of sight-spaces *inter se* can thus be reduced, of course there can be no difficulty in equating sight-spaces with spaces given to touch. In this equation, it is the touch-feeling which prevails as real and the sight which serves as sign—a relation made necessary not only by the far greater constancy of felt over seen magnitudes, but by the greater practical interest which the sense of touch possesses for our lives. As a rule, things only benefit or harm us by coming into direct contact with our skin: sight is, in Mr. Spencer’s phrase, only a sort of anticipatory touch, the latter is the “mother-tongue of thought,” and the hand-maid’s idiom must be translated into the language of the mistress before it can speak to the mind.

Later on we shall see that the feelings excited in the joints when a limb moves, are used as signs of the path traversed by the extremity. We seem to have in these joint-feelings instances of space-feelings, small *in se*, but geometrically similar to larger ones, preserving their form but suggesting the magnified scale of other sensations with which they are identified. But of this more anon. As for the equating of sound-, smell- and taste-volumes with those yielded by the more discriminative senses, they are too vague to need any

remark. It may be observed of pain, however, that its size has to be reduced to that of the normal tactile size of the organ which is its seat. A finger with a felon on it, and the pulses of the arteries therein, both 'feel' larger than we believe they really 'are'.

It will have been noticed in the account given that when two sensorial space-impressions, believed to come from the same object, differ, *then the one most interesting, practically or aesthetically, is judged to be the true one.* This law of interest holds throughout—though a permanent interest, like that of touch, may resist a strong but fleeting one like that of pain, as in the case just given of the felon.

(c) *Their Identification and Summation.*

Now for the next step in our construction of real space: *How are the various sense-spaces added together into a consolidated and unitary continuum?* For they are, in man at all events, incoherent at the start.

When a dentist is excavating a small cavity in one of our teeth we feel the hard point of his instrument scraping, in various distinctly differing directions, a surface which seems to our sensibility immensely larger than the subsequent use of the mirror tells us it really is. And though the directions of the scraping differ so completely *inter se*, not one of them can be identified with the particular direction in the outer world to which it corresponds. The space of the tooth-sensibility forms thus a little world by itself, which can only become congruent with the real space-world by further experiences which shall alter its bulk, identify its directions, fuse its margins, and finally imbed it as a definite part within a definite whole. Even though every joint's rotations should be felt to vary *inter se* as so many differences of direction in a common room; even though the same were true of diverse tracings on the skin, and of diverse tracings on the retina respectively, it would still not follow that feelings of direction, on these different surfaces, are intuitively comparable among each other, or with the other directions yielded by the feelings of the semi-circular canals. It would not follow that we should immediately judge them all to subdivide a common and single objective space-world.

If with the arms in an unnatural attitude we 'feel' things, we are perplexed about their shape, size and position. Let the reader lie on his back with his arms stretched above his head, and it will astonish him to find how ill able he is to recognise the geometrical relations of objects placed within

reach of his hands. But the geometrical relations here spoken of are nothing but identities recognised between the directions and sizes perceived in this way and those of our ordinary space-world. The two worlds do not fit each other intuitively.

How lax the connexion between the system of visual and the system of tactile directions is in man, appears from the facility with which microscopists learn to reverse the movements of their hand in manipulating things on the stage of the instrument. To move the slide to the *seen* left they must draw it to the *felt* right. But in a very few days the habit becomes a second nature. So in tying our cravat, shaving before a mirror, &c., the right and left sides are inverted and the directions of our hand movements are the opposite of what they seem. Yet this never annoys us. Only when by accident we try to tie the cravat of another person do we learn that there are two ways of combining sight and touch perceptions. Let any one try for the first time to write or draw while looking at the image of his hand and paper in a mirror, and he will be utterly bewildered. But a very short training will teach him to undo in this respect the associations of his previous lifetime.

Prisms show this in an even more striking way. If the eyes be armed with spectacles containing slightly prismatic glasses with their bases turned, for example, towards the right, every object looked at will be apparently translocated to the left; and the hand put forth to grasp any such object will make the mistake of passing beyond it on the left side. But less than an hour of practice in wearing such spectacles rectifies the judgment so that no more mistakes are made. In fact the new-formed associations are already so strong that when the prisms are first laid aside again the opposite error is committed, the habits of a lifetime violated, and the hand now passed to the right of every object it seeks to touch.¹

¹ It might, indeed, seem incredible that life-long association should be so rapidly undone. Were there any truth at all in the prevalent modern doctrine that ancestral habits engender fixed instincts in the progeny, one would say that the connexion with each other of the space-directions given by different senses ought to be congenital, inseparable and unconquerable. The facts cited might be taken to show that this modern doctrine, however it may be verified for lower forms, fails in its application to man. It must be remembered, however, that the association of particular body-movement directions with particular visual directions is not so constant as the objection assumes, even in creatures ignorant of mirrors, prisms and lenses. Every time we move one end of a lever towards the right we see the other end move towards the left. Every time we pull down a rope or

The incoherence of the different primordial sense-spaces *inter se* is often made a pretext for denying to the primitive bodily feelings any spatial quality at all. Nothing is commoner than to hear it said: "Babies have originally no spatial perception; for when a baby's toe aches it does not place the pain in the toe". But this is all wrong. The ache *is* a space; and it will be located within whatever movement-space may call it forth, or whatever pressure-space, heat-space or what not, may envelop it. What happens is, that *the baby does not place his toe in the pain*; for he knows nothing of his toe as yet. He has not attended to it as a visual object; he has not handled it with his fingers; nor have its normal organic sensations or contacts yet become interesting enough to be discriminated from the whole massive feeling of the foot, or even of the leg to which it belongs. In short, the toe is neither a member of the babe's optical space, of his hand-movement space, nor of his leg-and-foot space. It has actually no mental existence but as this little pain-space. What wonder then if the pain seem a little space-world all by itself?¹

But let the pain once associate itself with these other space-worlds, and its space will become part of their space. Let the baby feel the nurse stroking the limb and awakening the pain every time her finger passes towards the toe; let him look on and see her finger on the toe every time the pain shoots up; let him handle his foot himself and get the pain whenever the toe comes into his grasp; let heating the whole foot or moving the leg exacerbate the pain; and all is changed. The space of the pain becomes identified with that part of each of the other spaces which is being felt when it awakens; and by their identity with it these parts are identified with each other, and their totals grow systematically connected.

The general principles of the baby's action in all this have now to be examined. As we found a little while ago that the different seen magnitudes are reduced to repre-

vine hanging over a tree branch, the other end of it is seen to rise. And thus even in infra-human creatures a certain indeterminateness of connexion between visual and tactile directions of movement may be kept up. The topic is one which might repay evolutionist philosophers for more minute study.

¹ Surgical operations on babies sometimes reveal an almost incredible incoherence among their earliest bodily feelings. There is lacking in them that system of pre-organised reflex "movements of defence" which in lower creatures carry the mouth or the foot straight to the part attacked. A baby may be vaccinated without being held.

sentatives of one real one, through the intermediation of an *object* judged to be the same in all, so we shall now find that the continuity and identity of the different sense-spaces rest on the same *objective judgment*. This is what gives order to the chaos.

Any group of different feelings always experienced (or at will to be experienced) together, are simplified by the mind's holding them for so many attributes or aspects of the same outer reality—which reality is always held to be represented by one of them more truly and essentially than by the rest. Space-feelings follow this law. *If two or more sensible spaces always do or always may occur at the same time or vary concomitantly, we take them for two modes of appearance of the same real space. That one whose content is most interesting is judged to be the truest representative of this, the others become its mere associates, properties or signs.*¹

Thus, when a baby looks at its own moving hand, its retina gets a certain movement-feeling whilst its hand and arm become the seat of another movement-feeling. The baby holds the two movements to occupy the same space. The result is that the arm-space, more interesting than the retinal space by reason of the important skin-sensations to which it may lead, and therefore judged more real, is equated with a certain part of the retinal space, which, in becoming its sign, fixes to a certain extent the absolute space-values of the rest of the retinal field.

Suppose the baby learning to locate the pain of a blister in his toe by exploring his leg with his finger-tip and feeling the pain shoot up sharply the instant the blister is touched. The experiment gives him four different kinds of sensation—two of them protracted, two sudden. The first pair are the movement-feeling in the joints of the upper limb, and the movement-feeling on the skin of the leg and foot. These, as concomitantly experienced, are identified in their totalities as appearances of one objective space—the hand is judged to move through the same space in which the leg lies. The second pair are the pain in the blister, and the peculiar feeling the blister gives to the finger. Both these can be reproduced at will by repeating the movement—their spaces also fuse; and as each marks the end of a peculiar movement-series (arm moved, leg stroked), the movement-spaces are *emphatically* identified with each other at *that* end. Were there other small blisters distributed down the leg, there would be a number of these emphatic points; the movement-

¹ Cp. Lipps on "Complication," *Grundtatsachen des Seelenlebens*, p. 579.

spaces would be identified, not only as totals, but point for point. And the emphatic sensations that may momentarily occur imbedded in larger space-feelings not only play a part in conferring the maximum of reality upon those spaces that contain them, but they are the means of adding together spaces which can only be experienced in succession.

If, wandering through the woods to-day by a new path, I find myself suddenly in a glade which affects my senses exactly as did another I reached last week at the end of a different walk, I believe the two identical affections to present the same persisting glade, and infer that I have attained it by two differing roads. The spaces walked over grow congruent by their extremities; though apart from the one sensation those extremities give me, I should be under no necessity of connecting one walk with another at all. Now the case in no whit differs when shorter movements are concerned. If, moving first one arm and then another, a blind child gets the same kind of sensation upon the hand, and gets it again as often as he repeats either process, he judges that he has touched the same object by both motions, and concludes that the motions terminate in a common place.

From place to place marked in this way he moves, and adding the places moved through, one to another, he builds up his notion of the extent of the outer world. The seeing man's process is identical; only his units, which may be successive bird's-eye views, are much larger.

But the emphatic sensations that may interrupt a feeling of movement perform another function still. They lend their own scale of absolute magnitude to the movement. That part of the movement-feeling with which they coincide is equated in extent with them, they being more interesting than it. But as the magnitude of this part of the movement-feeling is *immediately* comparable in a more or less exact way with that of its remaining parts, the whole of the movement-space becomes measured in terms of the adventitious feeling in question.

(d) *Muscle-feelings versus Joint-feelings.*

The applications of this last principle are best seen in the Feelings of Movement which arise in *joints*. These feelings have been too much neglected hitherto, and in entering now somewhat minutely into their study I shall probably at the same time freshen the interest of the reader, which under the rather dry abstractions of the previous pages may presumably have flagged.

When, by simply flexing my right forefinger on its metacarpal joint, I trace with its tip an inch on the palm of my left hand, is my feeling of the size of the inch purely and simply a feeling in the skin of the palm, or have the muscular contractions of the right hand and forearm anything to do with it? In the preceding pages I have constantly assumed spatial sensibility to be an affair of surfaces. At first starting, the consideration of the "muscular sense" as a space-measurer was postponed to a later stage. Many writers, of whom the foremost was Thomas Brown, in his *Lectures on the Philosophy of the Human Mind*, and of whom the latest is no less a psychologist than Prof. Delbœuf of Liège, hold that the consciousness of active muscular motion, aware of its own amount, is the *fons et origo* of all spatial measurement. It would seem to follow, if this theory were true, that two skin-feelings, one of a large patch, one of a small one, possess their difference of spatiality, not as an immediate element, but solely by virtue of the fact that the large one, to get its points *successively* excited, demands more muscular contraction than the small one does. Fixed associations with the several amounts of muscular contraction required in this particular experience, would thus explain the apparent sizes of the skin-patches, which sizes would consequently not be primitive data but derivative results.

It seems to me that no evidence of the muscular measurements in question exists; but that all the facts may be explained by surface-sensibility, provided we take that of the joint-surfaces also into account.

The most striking argument, and the most obvious one, which an upholder of the muscular theory is likely to produce, is undoubtedly this fact: if, with closed eyes, we trace figures in the air with the extended forefinger (the motions may occur from the metacarpal-, the wrist-, the elbow- or the shoulder-joint indifferently), what we are *conscious of* in each case, and indeed most acutely conscious of, is the geometric path described by the *finger-tip*. Its angles, its subdivisions, are all as distinctly felt as if seen by the eye; and yet the surface of the finger-tip receives no sensation at all.¹ But with each variation of the figure, the muscular contractions vary, and so do the feelings these yield. Are not these latter the sensible data that make us aware of the lengths and directions we discern in the traced line?

¹ Even if the figure be drawn on a board instead of in the air, the variations of contact on the finger's surface will be much simpler than the peculiarities of the traced figure itself.

Should we be tempted to object to this supposition of the advocate of perception by muscular feelings, that we have *learned* the spatial significance of these feelings by reiterated experiences of *seeing* what figure is drawn when each special muscular grouping is felt, so that in the last resort the muscular space-feelings would be derived from retinal-surface feelings; our opponent might immediately hush us by pointing to the fact that in persons born blind the phenomenon in question is even more perfect than in ourselves.

If we suggest that the blind may have originally traced the figures on the cutaneous surface of cheek, thigh or palm, and may now remember the specific figure which each present movement formerly caused the skin-surface to perceive, he may reply that the delicacy of the motor perception far exceeds that of most of the cutaneous surfaces—that in fact we can feel a figure traced only in its differentials, so to speak, a figure which we merely *start* to trace by our finger-tip, a figure which traced in the same way *on* our finger-tip by the hand of another is almost if not wholly unrecognisable.

The champion of the muscular sense seems likely to be triumphant until we invoke the articular cartilages, as internal surfaces whose sensibility is called in play by every movement we make, however delicate the latter may be.

To establish the part they play in our geometrising, it is necessary to review a few facts. It has long been known by medical practitioners that, in patients with cutaneous anæsthesia of a limb, whose muscles also are insensible to the thrill of the faradic current, a very accurate sense of the position into which the limb may be flexed or extended by the hand of another may be preserved.¹ On the other hand, we may have the sense of attitude impaired when the tactile sensibility is intact. That the pretended feeling of outgoing innervation can play in these cases no part, is obvious from the fact that the movements by which the limb changes its position are passive ones, imprinted on it by the experimenting physician. The writers who have sought a *rationale* of the matter have been driven by way of exclusion to assume the articular surfaces to be the seat of the perception in question.²

That the joint-surfaces *are* sensitive appears evident from

¹ See for example Duchenne, *Electrisation localisée*, pp. 727, 770, Leyden; *Virchow's Archiv*, Bd. xlvii. (1869).

² *E.g.*, Eulenburg, *Lehrb. d. Nervenkrankheiten*, Berlin, 1878, i. 3.

the fact that in inflammation they become the seat of excruciating pains, and from the perception by everyone who lifts weights or presses against resistance, that every increase of the force opposing him betrays itself to his consciousness principally by the starting-out of new feelings or the increase of old ones, in or about the joints. If the structure and mode of mutual application of two articular surfaces be taken into account, it will appear that, granting the surfaces to be sensitive, no more favourable mechanical conditions could be possible for the delicate calling of the sensibility into play than are realised in the minutely graduated rotations and firmly resisted variations of pressure involved in every act of extension or flexion. Nevertheless it is a great pity that we have as yet no direct testimony, no expressions from patients with healthy joints accidentally laid open, of the impressions they experience when the cartilage is pressed or rubbed.

The nearest approach to direct evidence, so far as I know, is contained in the paper of Lewinski,¹ published in 1879. This observer had a patient the inner half of whose leg was anæsthetic. When this patient stood up, he had a curious illusion about the position of his limb, which disappeared the moment he lay down again: he thought himself *knock-kneed*. If, as Lewinski says, we assume the inner half of the joint to share the insensibility of the corresponding part of the skin, then he *ought* to feel, when the joint-surfaces pressed against each other in the act of standing, the outer half of the joint most strongly. But this is the feeling he would also get whenever it was by any chance sought to force his leg into a knock-kneed attitude. Lewinski was led by this case to examine the feet of certain ataxic patients with imperfect sense of position. He found in every instance that when the toes were flexed *and drawn upon* at the same time (the joint-surfaces drawn asunder) all sense of the amount of flexion disappeared. On the contrary, when he pressed a toe *in*, whilst flexing it, the patient's appreciation of the amount of flexion was much improved, evidently because the artificial increase of articular pressure made up for the pathological insensibility of the parts.

Applying these results (which, though supported by circumstantial evidence only, seem nevertheless invulnerable) to the case of the tracing finger-tip, we see that the latter gives no countenance to the theory of localisation by muscular sense. The tip is indubitably localised at the

¹ "Ueber den Kraftsinn," *Virchow's Archiv*, Bd. lxxvii. 134.

successive points of its path by incoming sensations produced by the slipping over each other of the cartilages on which it turns; and the whole phenomenon, instead of refuting, most brilliantly corroborates the view that localisation is exclusively a surface-affair. *Muscular contraction is only indirectly instrumental in giving us space-feelings, by its objective effects on surfaces.* In the case of skin and retina, it produces a motion of the stimulus upon the surface; in the case of joints it produces a motion of the surfaces upon each other—such motion being by far the most delicate manner of sensibly exciting the surfaces in question. One is tempted to doubt whether the muscular sensibility as such plays even a subordinate part as *sign*, of these more immediately geometrical perceptions which are so uniformly associated with it as effects of a common cause—the contraction objectively considered.¹

¹ The admirably judicious A. W. Volkmann says (*Untersuchungen im Gebiete der Optik*, Leipzig, 1863, p. 188): "Muscular feeling gives tolerably fine evidence as to the *existence* of movement, but hardly any direct information about its extent or direction. We are not aware that the contractions of a *supinator longus* have a wider range than those of a *supinator brevis*; and that the fibres of a bipenniform muscle contract in opposite directions is a fact of which the muscular feeling itself gives not the slightest intimation. Muscle-feeling belongs to that class of general sensations which tell us of our inner states, but not of outer relations; it does not belong among the space-perceiving senses." See also *Ibid.*, p. 189, and Hering, *Beiträge*, pp. 31, 240. Weber (Article "Tastsinn") also calls attention to the fact that muscular movements as large and strong as those of the diaphragm go on continually without our perceiving them as motion. See also Lewes, *Problems*, vol. ii., p. 478. But the final crushing defeat of the muscular-sense as the chief agent in space-perception is given by Prof. Lipps in a few pages (6 to 27 of his *Psychologische Studien*, 1885), which I advise all students to read.

Nevertheless certain facts may still be brought up against our surface-theory. When we move the wings of the nostrils, the external ear and, to a certain degree, the tongue, the feeling we get is distinctly one of movement, but it involves anatomically no such passage of anything over a surface as, according to our text, it should. The explanation is that we have learned the movement-significance of these movement-feelings and skin-stretchings, by producing them "passively," by manipulating the parts on former occasions with our fingers. A personal experience, made since the text was written, seems to me strongly to corroborate this view. For years I have been familiar, during the act of gaping, with a large, round, smooth sensation in the region of the throat, a sensation characteristic of gaping and nothing else, but which, although I had often wondered about it, never suggested to my mind the motion of anything. The reader probably knows from his own experience exactly what feeling I mean. It was not till one of my students told me, that I learned its objective cause. If we look into the mirror while gaping, we see that at the moment we have this feeling, the *uvula* or hanging palate *rises* by the contraction of its intrinsic muscles. The contraction of these muscles and the com-

But if this is all so, it may well be asked : " Why do we feel the figure to be traced, not within the joint itself, but in such an altogether different place ? And why do we feel it so much larger than it really is ? "

I will answer these questions by asking another : Why do we move our joints at all ? Surely to gain something more valuable than the insipid joint-feelings themselves. And these more interesting feelings (if we abstract from eye and ear) are in the main produced upon the *skin* of the moving part, or of some other part over which it passes. With movements of the fingers we explore the configuration of all real objects with which we have to deal, our own body as well as foreign things. Nothing that interests us is located in the joint ; everything that interests us either *is*, or coincides in place with, some part of our skin. The skin-spaces come thus to figure as the important ones for us to concern ourselves with. Every time the joint moves, even though no skin-sensation occurs, the reminiscence of skin-sensations which formerly coincided with that extent of movement, ideally awoken as the movement's import, and the mind drops the present sign to attend to the import alone. The joint-sensation itself, and as such, does not disappear in the process. A little attention easily detects it, with all its fine peculiarities, hidden beneath its vaster suggestions ; so that really the mind has two space-perceptions before it, congruent in form but different in scale and place, either of which exclusively it may notice, or both at once,—the joint-space it *feels* and the real space it *means*.

The joint-spaces serve so admirably as signs because of their capacity for *parallel variation* to all the peculiarities of external motion. There is not a direction in the real world nor a ratio of distance, which cannot be matched by some direction or extent of joint-rotation. Joint-feelings, like all feelings, are roomy. Specific ones are contrasted *inter se* as

pression of the palatine mucous membrane are what occasion the feeling ; and I was at first astonished that, coming from so small an organ, it could appear so voluminous. Now the curious point is this—that no sooner had I learnt by the eye its objective space-significance, than I found myself enabled mentally to *feel* it as a movement upwards of a body in the situation of the uvula. When I now have it, my fancy *injects* it, so to speak, with the image of the rising uvula ; and it *absorbs* the image easily and naturally. In a word, a muscular contraction gave me a sensation whereof I was unable during forty years to interpret a motor meaning, of which two glances of the eye made me permanently the master. To my mind no further proof is needed of the fact that muscular contraction, merely as such, need not be perceived directly as so much motion through space.

different directions are contrasted within the same extent. If I extend my arm straight out at the shoulder the rotation of the shoulder-joint will give me one feeling of movement; if then I sweep the arm forward, the same joint will give me another feeling of movement. Both these movements are felt to happen in space, and differ in specific quality. Why shall not the specificness of the quality just consist in the feeling of a peculiar *direction*? Why may not the several joint-feelings *be* so many perceptions of movement in so many different directions? That we cannot explain why they *should* be is no presumption that they *do* not, for we never can explain why any sense-organ should awaken the sensation it does.

But if the joint-feelings are directions and extents, standing in relation to each other, the task of association in interpreting their import in eye- or skin-terms is a good deal simplified. Let the movement *bc*, of a certain joint, derive its absolute space-value from the cutaneous feeling it is always capable of engendering; then the longer movement *abcd* of the same joint will be judged to have a greater space-value, even though it may never have wholly merged with a skin-experience. So of differences of direction: so much joint-difference = so much skin-difference; therefore more joint-difference = more skin-difference. In fact, the joint-feeling can excellently serve as a *map* on a reduced scale, of a reality which the imagination may project at its pleasure into this or that part of objective space.

When the joint-feeling in itself acquires an emotional interest,—which happens whenever the joint is inflamed and painful,—the secondary suggestions fail to arise and the movement is felt where it is, and in its proper scale of magnitude.

I have said hardly anything about associations with visual space in the foregoing account, because I wished to represent a process which the blind man and the seeing might equally share. It is to be noticed that the space suggested to the imagination and projected to the distance of the finger-tip is not represented as any such *specific* skin-tract as that of cheek or palm, by means of which the 'meaning' of the joint-rotation may originally have been learned. What the mind imagines is rather a generic image, an abstraction from many skin-spaces whose local-signs have neutralised each other by blending, and left nothing but their common vastness behind. We shall see as we go on that this generic abstraction of space-magnitude from the various local peculiarities of feeling which accompanied it when it was

for the first time felt, occurs on a considerable scale in the acquired perceptions of blind as well as of seeing men.

(c) *Extradition.*

It is now necessary to carry our study of the imaginary projection of feelings still further, and to follow out those cases where we seem to perceive directly by the sense of touch what happens at distances far removed from any sensory surface of the body. Take first a few more facts.

If one of the hairs of our head be pulled, we are pretty accurately sensible of the direction of the pulling by the movements imparted to the head.¹ But the feeling of the pull is localised, not in that part of the hair's length which the fingers hold, but in the scalp itself. This seems connected with the fact that our hair hardly serves at all as a tactile organ. In creatures with *vibrissæ*, however, and in those quadrupeds whose whiskers are tactile organs, it can hardly be doubted that the feeling is projected out of the root into the shaft of the hair itself. We ourselves have an approach to this when the beard as a whole, or the hair as a whole, is touched. We perceive the contact at some distance from the skin.

When fixed and hard appendages of the body, like the teeth and nails, are touched, we feel the contact where it objectively is, and not deeper in, where the nerve-terminations lie. If, however, the tooth is loose, we feel two contacts, spatially separated, one at its root, one at its top.

From this case to that of a hard body not organically connected with the surface, but only accidentally in contact with it, the transition is immediate. With the point of a cane we can trace letters in the air or on a wall just as with the finger-tip; and in so doing feel the size and shape of the cane's path just as immediately as formerly we seemed to feel the path described by the finger. Similarly the draughtsman's immediate perception seems to be of the point of his pencil, the surgeon's of the end of his knife, the duellist's of the tip of his rapier as it plunges through his enemy's skin. When on the middle of a vibrating ladder, we feel not only our feet on the round, but the ladder's feet against the ground far below. If we shake a locked iron gate we feel the middle, on which our hands rest, move, but we equally

¹ This is proved by Weber's device of causing the head to be firmly pressed against a support by another person, whereupon the direction of traction ceases to be perceived.

feel the stability of the ends where the hinges and the lock are, and we seem to feel all three at once.¹

Such examples open up the whole subject of Extradition, one of the most difficult problems which can occupy the space-philosopher. We shall see later in the special section on vision that the third dimension, or depth, has always been the stumbling-block of theorists. Here, however, it behoves us to note that the seeming migration we have just studied, of a feeling from a joint to a finger-tip, with concomitant enlargement of size, seems to differ in no essential respect from those migrations beyond the skin with greater enlargement still. Closer examination will corroborate this essential identity of the two cases, and the examination will be much facilitated by recalling a few general principles at the start. We saw that all sensations are voluminous or contain the third dimension in a vague way. Projection, which is localisation of an impression at a determinate distance in this dimension, involves three factors: (1) feeling the extent of the dimension as a whole; (2) discriminating a partial sensation within it; (3) measuring the distance of that sensation from one of the extremes.

It would appear therefore that, in the first instance at any rate, a sensation can be projected or extradited, only if it form part of a space-volume felt all at once, or in continuous succession. The mind in projecting would seem to identify its own position with that of one part of this volume, as a *here*, and detach from itself the other part, as a *there*. Now the centre the mind has thus chosen for its own felt habitation is undeniably sometimes within the head, sometimes within the throat or breast—not a rigorously fixed spot there, but a region within which it seems to itself to move,² and from any portion of which it may send forth its various acts of attention. Extradition from either of *these* regions is the common law under which we perceive the whereabouts of the north star, of our own voice, of the contact of our teeth with each other, of the tip of our finger, the point of our cane on the ground, or a pain in our elbow-joint. The appearance of a feeling in the joint is as much a projection or a migration as its appearance in the north star would be. Amputations show how, owing to central excitement, limbs no longer existing are felt in their old site, or somewhat retracted. But the fact of extradition is the same when the

¹ Cp. Lotze, *Med. Psych.*, 428-433; Lipps, *Grundtatsachen des Seelenlebens*, 582.

² The reader is reminded of the facts mentioned in sec. 1.

limb is there¹ as when it is not. Extradition obtains, then, even of such sensations as we locate on the exact sensory surfaces where the nerves terminate. Could we feel our *retinal* pictures *where they are*, this would involve a dealing with the third dimension quite as thorough as does our feeling them across the room. The distinction so often made between our primitive spatial perception as that of a surface, and our perception of the third dimension as subsequent and acquired, is utterly baseless. For to feel any surface, *as such*, involves all three dimensions.

The only difference between primitive and acquired in this department of consciousness is the difference between vague and unbroken on the one hand, and subdivided and measured on the other. It is conceivable that the *subdivision* of either dimension might be earlier and more accurate than that of the two others, but it is inconceivable that either dimension should appear out of relation to the others, inconceivable that the very earliest apprehension of space should not be that of space cubic, as it really exists. Those philosophers therefore who hold that the *prius* of all external perception is the vague consciousness of the body as cubically extended must be held to be essentially in the right.²

To return now, after this theoretic digression, to our special facts. *For a joint to be felt in situ, the entire intervening mass of tissue between it and the brain must be susceptible of becoming one continuous object of perception.* The existence of this intervening space-object is the *conditio sine qua non* of the joint's 'projection' to the farther end of it. To say nothing of other ways in which this space may be felt (as by the eye or the exploring hand), it is felt by means of its *own* nerves, whose local-signs pass gradually into those in and about the joint, and give us, whenever they awaken together, a unitary massive space. For the finger-tip to be felt where

¹ In a purely subjective account, its 'being' there means, of course, only the presence of other feelings than the one in question, projected 'there' just as it is.

² Of late years the doctrine has been revived by I. H. Fichte and Ulrichi that the soul itself is a cubically extended substance pervading the body, and that the latter becomes the "immediate object" in perception through the fact that the perceiving subject is coextensive with it. And this view has been defended in a recent American work of unusual critical ability—*The Perception of Space and Matter*, by J. E. Walter, Boston, 1880. (Cp. Noah Porter's *Human Intellect*, p. 130.) But it is not necessary that we should commit ourselves either to the theory of an extended soul-substance or to that of the body as "immediate object". I only cite these theories to illustrate the need which coerces men to postulate *something* tridimensional as the first thing in external perception.

it is, a still longer intervening *continuum* must be sensible, with the feeling lodged at its end.

But how, when the space between the brain and the point of projection has no nerves (which is the case with spaces beyond the body's limits), is it to be felt as an intervening *continuum* at all? Simply by forming *with* the mass of sensitive tissue and surface beyond which it extends a *new object for some other sense*.

Suppose the cane held in my right hand and its point pressed against the wall. I can, by paying attention, feel the whole solidity of my arm, the sensations in its joints as they move, and the pressure of the fingers upon the cane. But I also feel the wall where the cane touches it a yard away from my hand. Now this yard forms with the arm a common object, either for the exploring motion of my left hand (which may pass first down the right arm, and then down the cane it holds, by a combination of continuous movements); or for the skin of the body and leg, against the length of which both arm and cane may be applied.¹ This common objectivity of arm and cane gives the space of the projection as a whole, the first of those three factors which we saw extradition to involve.

The next factor is the particular kind of sensation to be extradited. This can be nothing else than the feeling of the hardness or softness of the wall as it would affect our exploring hand. The similarity of the cane's actual pressure to this ideal pressure makes it seem as if the actual feeling of the hand had migrated into a new place. Most probing and palpating instruments are rigid, and communicate without alteration the feeling the hand itself would receive if it took the place of their farther extremity. Finally, the last factor is the precise distance within the total depth at which the sensation shall be lodged. In the case of the rigid stick this offers no difficulty. Easy experiences teach us that the cane's tip is the point from which diverge all the pressures it exerts upon our hand. Thither accordingly we send our image of the resisting thing we feel. When the cane is flexible, its own changes of shape become important, and we lodge the feeling of resistance partly in its tip, partly along its whole length. If we move the cane's tip through the air, instead of letting it touch the wall, all we need do is to multiply our hand-movement sensations by a certain factor corresponding to the cane's length. This gives us the distinct image of a large path traversed by the tip. This

¹ Again I omit all mention of the eye, so as to account for the blind man.

ideal and uniform enlargement of a system of sensations is nothing exceptional. Vision is full of it; and in the manual arts, where a workman gets a tool larger than the one he is accustomed to and has suddenly to adapt all his movements to its scale, or where he has to execute a familiar set of movements in an unnatural position of body; where a piano-player meets an instrument with unusually broad or narrow keys; where a man has to alter the size of his handwriting,—we see how promptly the mind multiplies once for all, as it were, the whole series of its operations in advance by a constant factor, and has not to trouble itself after that with further adjustment of the details.

We have now to pass to the great subject of Visual Space, and in view of what is to follow may best at this stage append (in a Supplementary Note) some remarks on the peculiarities of the blind man's perception. But before closing the present section, let us look back for a moment upon the results of the last pages, and ask ourselves again whether the building up of the more systematic and orderly space-perceptions out of the more chaotic primitive ones requires any other mental powers than those displayed in ordinary intellectual operations. I think it is obvious—granting the spatial *qualie* to exist in the primitive sensations,—that discrimination, association, addition, multiplication and division, blending into generic images, substitution of similars, selective emphasis, and abstraction from uninteresting details, are quite capable of giving us all the space-perceptions we have so far studied, without the aid of any mysterious “mental chemistry” or power of “synthesis” to create elements absent from the original data of feeling. It cannot be too strongly urged in the face of mystical attempts, however learned, that there is not a landmark, not a length, not a point of the compass in real space which is not some *one* of our feelings, either experienced directly as a presentation or ideally suggested¹ by another feeling which has come to serve as its sign. In degrading some sensations to the rank of signs and exalting others to that of realities signified, we smooth out the wrinkles of our first chaotic impressions and make a continuous order of what was a rather incoherent multiplicity. But the *content* of the order remains identical with that of the multiplicity—sensational both, through and through.

¹ A generic image of several space-feelings of the same sphere of sensibility may take the place of an individual image in the case of ideal suggestion, where the latter is not of a definitely measured extension.

NOTE.—*The Space of the Blind.*

The blind man's construction of real space differs from that of the seeing man most obviously in the larger part which synthesis plays in it, and the relative subordination of analysis. The seeing baby's eyes take in the whole room at once, and discriminative attention must arise in him before single objects are visually discerned. The blind child, on the contrary, must form his mental image of the room by the addition, piece to piece, of parts which he learns to know successively. With our eyes we may apprehend instantly an enormous bird's-eye-view of a landscape which the blind man is condemned to build up bit by bit after weeks perhaps of exploration. We are exactly in his predicament, however, for spaces which exceed our visual range. We think the ocean as a whole by multiplying mentally the impression we get at any moment when at sea. The distance between New York and San Francisco is computed in day's journeys; that from earth to sun is so many times the earth's diameter, &c.; and of longer distances still we may be said to have no adequate mental image whatever, but only numerical verbal symbols.

But the symbol will often give us the emotional effect of the perception. Such expressions as the abysmal vault of heaven, the endless expanse of ocean, &c., summarise many computations to the imagination, and give the sense of an enormous horizon. So it seems with the blind. They multiply mentally the amount of a distinctly felt freedom to move, and gain the immediate sense of a vaster freedom still. Thus it is that blind men are never without the consciousness of their horizon. They all enjoy travelling, especially with a companion who can describe to them the objects they pass. On the prairies they feel the great openness; in valleys they feel closed in; and one has told me that he thought few seeing people could enjoy the view from a mountain top more than he. A blind person on entering a house or room immediately receives, from the reverberations of his voice and steps, an impression of its dimensions, and to a certain extent of its arrangement. The tympanic sense noticed on pp. 5, 6 comes in to help here, and possibly other forms of tactile sensibility not yet understood. Mr. W. Hanks Levy, the blind author of *Blindness and the Blind* (London), gives the following account of his own powers of perception:—“Whether within a house or in the open air, whether walking or standing still, I can tell, although quite blind, when I am opposite an object, and can perceive whether it be tall or short, slender or bulky. I can also detect whether it be a solitary object or a continuous fence; whether it be a close fence or composed of open rails; and often whether it be a wooden fence, a brick or stone wall, or a quick-set hedge. I cannot usually perceive objects if much lower than my shoulder, but sometimes very low objects can be detected. This may depend on the nature of the objects, or on some abnormal state of the atmosphere. The currents of air can have nothing to do with this power, as the state of the wind does not directly affect it; the sense of hearing has nothing to do with it, as when snow lies thickly on the ground objects are more distinct, although the footfall cannot be heard. I seem to perceive objects through the skin of my face, and to have the impressions immediately transmitted to the brain. The only part of my body possessing this power is my face; this I have ascertained by suitable experiments. Stopping my ears does not interfere with it, but covering my face with a thick veil destroys it altogether. None of the five senses have anything to do with the existence of this power, and the circumstances above named induce me to call this unrecognised sense by the name of ‘facial perception’. . . . When passing along a street I can distinguish shops from private houses, and even point out the doors and windows, &c., and this whether the doors be shut or open. When a window consists of one entire sheet of glass, it is more difficult to discover

than one composed of a number of small panes. From this it would appear that glass is a bad conductor of sensation, or at any rate of the sensation specially connected with this sense. When objects below the face are perceived, the sensation seems to come in an oblique line from the object to the upper part of the face. While walking with a friend in Forest Lane, Stratford, I said, pointing to a fence which separated the road from a field, 'Those rails are not quite as high as my shoulder'. He looked at them, and said they were higher. We, however, measured, and found them about three inches lower than my shoulder. At the time of making this observation I was about four feet from the rails. Certainly in this instance facial perception was more accurate than sight. When the lower part of a fence is brick-work, and the upper part rails, the fact can be detected, and the line where the two meet easily perceived. Irregularities in height, and projections and indentations in walls, can also be discovered." According to Mr. Levy, this power of seeing with the face is diminished by a fog, but not by ordinary darkness. At one time he could tell when a cloud obscured the horizon, but he has now lost that power, which he has known several persons to possess who are totally blind. These effects of aqueous vapour suggest immediately that fluctuations in the heat radiated by the objects may be the source of the perception. One blind gentleman, Mr. Kilburne, an instructor in the Perkins Institution in South Boston, who has the power spoken of in an unusual degree, proved, however, to have no more delicate a sense of temperature in his face than ordinary persons. He himself supposed that his ears had nothing to do with the faculty until a complete stoppage of them, not only with cotton but with putty on top of it, by abolishing the perception entirely, proved his first impression to be erroneous. Many blind men say immediately that their ears are concerned in the matter.

Sounds certainly play a far more prominent part in the mental life of the blind than in our own. In taking a walk through the country, the mutations of sound, far and near, constitute their chief delight. And to a great extent their imagination of distance and of objects moving from one distant spot to another seems to consist in thinking how a certain sonority would be modified by the change of place. It is unquestionable that the semi-circular canal feelings play a great part in defining the points of the compass and the direction of distant spots, in the blind as in us. We start towards them by feelings of this sort; and so many directions, so many different-feeling 'starts'.

The only point that offers any theoretic difficulty is the prolongation into space of the direction, after the start. We saw on p. 206 that for extradition to occur beyond the skin, the portion of skin in question and the space beyond must form a common object for some other sensory surface. The eyes are for most of us this sensory surface; for the blind it can only be other parts of the skin, coupled or not with motion. But the mere gropings of the hands in every direction must end by surrounding the whole body with a sphere of felt space. And this sphere must become enlarged with every movement of locomotion, these movements gaining their space-values from the semi-circular-canal-feelings which accompany them, and from the farther and farther parts of large fixed objects (such as the bed, the wainscoting or a fence) which they bring within the grasp. It might be supposed that a knowledge of space acquired by so many successive discrete acts would always retain a somewhat jointed and so to speak granulated character. When we who are gifted with sight think of a space too large to come into a single field of view, we are apt to imagine it as composite, and filled with more or less jerky stoppings and startings (think, for instance, of the space from here to San Francisco), or else we reduce the scale to an intuitively manageable one, and imagine how much

larger on a map the distance would look than others with whose totality we are familiar.

I am disposed to believe, after interrogating many blind persons, that the use of imaginary maps on a reduced scale is not as frequent with them as with the rest of us. Possibly the extraordinary changeableness of the visual magnitudes of things makes this habit natural to us, while the fixity of tactile magnitudes keeps them from falling into it. (When the blind young man operated on by Dr. Franz was shown a portrait in a locket, he was vastly surprised that the face could be put into so small a compass: it would have seemed to him, he said, as impossible as to put a bushel into a pint.) Be this as it may, however, the space which each blind man feels to extend beyond his body is felt by him as one smooth continuum—all trace of those muscular startings and stoppings and reversals which presided over its formation having been eliminated from the memory. It seems, in other words, a generic image of the space-element common to all these experiences, with the unessential particularities of each left out. In truth, *where* in this space a start or a stop may have occurred, was quite accidental. It may never occur just there again, and so the attention lets it drop altogether. Even as long a space as that traversed in a several-mile walk will not necessarily appear to a blind man's thought in the guise of a series of locomotor acts. Only where there is some distinct locomotor difficulty, such as a step to ascend, a difficult crossing, or a disappearance of the path, will distinct locomotor images constitute the idea. Elsewhere the space seems continuous, and its parts may even all seem co-existent; though, as a very intelligent blind friend once remarked to me, "To think of such distances involves probably more mental wear and tear and brain-waste in the blind than in the seeing". This seems to point to a greater element of successive addition and construction in the blind man's idea.

Our own visual explorations go on by means of innumerable stoppings and startings of the eyeballs. Yet these are all effaced from the final space-sphere of our visual imagination. They have neutralised each other. We can even distribute our attention to the right and left sides simultaneously, and think of those two quarters of space as co-existent. Does the smoothing out of the locomotor interruptions from the blind man's tactile space-sphere offer any greater paradox? Surely not. And it is curious to note that both in him and in us there is one particular locomotor feeling that is apt to assert itself obstinately to the last. We and he alike spontaneously imagine space as lying *in front* of us, for reasons too obvious to enumerate. If we think of the space behind us we, as a rule, have to *turn round* mentally, and in doing so the front space vanishes. But in this, as in the other things of which we have been talking, individuals differ widely. Some, in imagining a room, can think of all its six surfaces at once—like Mr. Galton's correspondents quoted in *MIND* v. 315. Others mentally turn round, or, at least, imagine the room in several successive and mutually exclusive acts.

Sir Wm. Hamilton (*Lects. on Metaphysics*, ii. 174) has, by resuscitating it, given to the foolish opinion of a German philosopher of the last century, Platner, greater currency among us than it deserves. Platner says: "The attentive observation of a person born blind . . . has convinced me that the sense of touch by itself is altogether incompetent to afford us the representation of extension and space. . . . In fact, to those born blind, time serves instead of space. Vicinity and distance mean in their mouths nothing more than the shorter or longer time . . . necessary to attain from some one feeling to some other." It is needless to remark on the utterly arbitrary and fanciful character of such an interpretation. No opinion is so silly but it will find some "learned Theban" to defend it. Platner's doctrine may well pair off with that of Brown, the Mills and other English psychologists, who hold colours to be primitively seen without extension.

III.—FURTHER PROBLEMS OF HYPNOTISM. (I.)¹

By EDMUND GURNEY.

It is difficult to get a satisfactory definition of what constitutes 'hypnotic trance'. If we begin at the bottom of the scale—with animals that have been subjected to certain processes of fixation and manipulation—the only phenomena open to observation are immobility and anæsthesia; animals present nothing corresponding to what I have called the "alert stage" (see *MIND* No. 33)—less accurately, I think, described as the *somnambule* stage—of hypnotism. It would be pedantic, perhaps, to refuse to call their state one of hypnotisation, when it has been produced by means similar to those employed to hypnotise human beings, and when their condition appears analogous to the deeper or comatose stage of human trance; still it would obviously be impossible to accept immobility and anæsthesia as affording a sufficient definition of a hypnotic condition, for at that rate a deeply chloroformed patient would be 'hypnotised'. And when we turn to human beings, there seem to be strong reasons against taking the ground of definition from any *physical* symptoms. Analgesia, diminished sensibility of the conjunctiva, &c., are not distinctive, and are not constant. Increased muscular irritability and catalepsy are frequently absent in 'subjects' who manifest the most interesting psychical phenomena; moreover, these muscular peculiarities are common to certain affections generally called hypnotic and to certain affections generally called hysterical, and for no purpose is a definition of hypnotism more needed than to distinguish it from *morbid* affections—to preserve a state whose most interesting features may be observed at a minute's notice in strong and healthy young men, from any necessary association with the idea of lesion or chronic instability. 'Inhibition of inhibitory functions' is the sufficient, though clumsy, description of the immediate ground of many hypnotic phenomena, including mechanical imitations of gesture, mechanical continuance of particular muscular movements and diminished reaction-time; but this ground is clearly too general to found a definition upon—the same sort of inhibition being involved in a

¹ See *MIND* ix. 110, 477 (Nos. 33, 36).

minor degree in all manner of circumstances of absorbed attention or sudden shock. It appears to me that the only serviceable definition must depend on the idea of what I have ventured in a former paper (MIND No. 36) to call "psychical reflex action". That is to say, I should confine the term 'hypnotic trance' to a state in which (or in some stage of which) inhibition reaches the higher inhibitory and co-ordinating faculties; and particular ideas, or groups of ideas, readily dissociating themselves from their normal relation to other groups and to general controlling conceptions, and throwing off the restraint proper to elements in a sane scheme, respond with abnormal vigour and certainty to any excitations that may be addressed to them. Such response may be shown (1) in the inhibition, by command, of ordinary muscular movements or control of movements; (2) in the ease with which the 'subject's' mind can be steered, so to speak, in the course of conversation or narration; but chiefly (3) in the ready imposition, by external suggestion, of sensory hallucinations, or (4) of abnormal lines of conduct. This psychical characteristic (educible, if not actually educed, in the 'subject'—see MIND No. 33) has belonged to nearly all the cases which have been described as hypnotic, and, in a marked degree, scarcely to any others; for only by the rarest exception does it occur spontaneously in morbid cases. As thus defined, moreover, hypnotism is conveniently marked off from the natural condition—somnambulism—to which it is most akin. And the definition has the further advantage of emphasising what are not only the most constant but also decidedly the most important and instructive of the hypnotic phenomena.¹ For in every branch of mental and moral science—psychology, ethics, jurisprudence and, we may add, the extraordinary therapeutical applications of 'suggestion'—the interest of Hypnotism, of which every year witnesses a marked advance, has centred in the various forms of mono-ideism embraced under the conception of "psychical reflex action".

Now all this interest has to do, of course, with the state itself, not with its genesis. The facts studied are peculiarities of mental condition which appear after the induction, by whatever means, of a certain stage of hypnotic trance. Questions connected with the means by which the trance may be induced have held for the psychologist a subordinate

¹ Such a definition of the trance proper need not, of course, prevent us from applying hypnotic terms to *local* affections—such as the rigidity or anaesthesia of a single limb—which are brought about by means similar to those used in the production of trance

position : he has at most attempted to supplement the ordinary physiological doctrines as to the effect of 'fixation' and 'monotonous stimulation' by the conception of 'attention'—an attempt which has been misleading, in so far as it has implied that attention on the part of the 'subject' (who may be an infant or a cray-fish) is a general condition of hypnotisation. Certain recent events, however, have given special importance to this topic of trance-induction or 'hypnogeny,'¹ and have raised in a startling form the question of the efficacy of psychical influence as a hypnogenetic agent. And this question naturally connects itself with a more general inquiry respecting 'specific influence' and 'mesmeric rapport'—topics which, in my last paper, I noticed only to avoid, as not at that time coming within the most extended limits of scientific recognition, but which analysis may perhaps rob of some of their mystery, and which I am now at least justified in having described as lying "in the direct path of orthodox hypnotic experiment".

In the paper just referred to (MIND No. 36) I dwelt on the fact that the various processes by which hypnotic trance may be induced—whether regarded in their *physical* aspects, as fixation of the eyes or gentle peripheral stimulation, or in their *psychical* aspects, as expectation or attention—do little or nothing to explain the condition which ensues, inasmuch as nothing that we know, outside hypnotism, would have led us to predict that the results would follow the processes ; so that the "profound nervous change," which Braid proclaimed as the immediate cause of the results, has still to be accepted as an ultimate fact. And I further drew attention to the peculiarity that the production of this profound nervous change seems, in the first instance, always to require some distinct *physical* stimulation ;² though, after it has once been induced, the mere idea of it, associated with that of the original hypnotiser—*e.g.*, if he gives the command '*Dormez!*'—may be enough to cause its recurrence. So far as I am aware, no distinctly hypnotic condition has ever been originally induced by a mere idea or a merely emotional

¹ This term is not a happy one, as it contains no indication of the fundamental difference between hypnotic trance and ordinary sleep ; but it is difficult to think of a tolerable substitute.

² An example recorded by Esdaile, who professes to have hypnotised a blind man for the first time by steadily gazing at him from a distance of 20 yards, would appear to be an exception. I admit the force of Esdaile's testimony ; but the account was not written till after he had frequently hypnotised the man, and it seems possible that his memory betrayed him as to the circumstances of the first experiment.

stimulus. No doubt a favourable attitude of mind on the part of an exceptionally sensitive 'subject' may so prepare the organism, and the physical stimulus that supervenes may be of so simple and ordinary a kind, that its essential part in the result is liable to be overlooked. Thus it is said of certain French 'subjects' that a moment's fixation of attention, followed by a command to sleep, has proved effective even on a first occasion; and it may then seem reasonable to refer the change of state to the mere idea of sleep, or to the expectancy of a sudden change as soon as the command was given. But the idea of sleep had been present for some time, without the effect being produced; I, at any rate, know of no instance where precautions were taken to keep the 'subject' entirely ignorant of the intended trial up to the moment that it was made. And if it were enough to be expectant of a sudden change when the command came, the change ought equally to supervene if the operator gave his command silently, *e.g.*, by means of the 'dumb alphabet'. Till some such case is recorded, we seem justified in attributing this sudden change to the suddenly presented new element—*i.e.*, the arresting sound of the operator's voice. When the 'subject' is of a specially unstable constitution, the condition of expectancy may be wholly dispensed with, and a rather stronger stimulus—a distinct shock—will then be necessary; but always of a physical sort. The mental shock of surprise or terror may, as we all know, produce temporary paralysis of motor power and other physical effects; but the only shocks which have been followed by the characteristic phenomena of hypnotic trance have been those due to a sudden loud sound or sudden bright light. It is worth remarking, by the way, that the state produced in this way is always that of *cataplexy*, not that of *lethargy*, which is the more common first stage of hypnotism. The difference between these two states has, I believe, been considerably exaggerated by the school of the Salpêtrière; but so far as they really differ, it is of interest that the direct production of either should equally lead on to that unbalanced but potentially active mental condition in which the characteristic *somnambulant* phenomena present themselves. For this suggests that the unbalancing depends not so much on the special nature as on the suddenness of the change; and that the *somnambulant* phenomena may be liable to appear after *any* very rapid shifting of the level of consciousness, which does not, like ordinary sleep, sink the reason below the point where attention can be attracted to imposed hallucinations and commands, and which is not, like the passage into

ordinary sleep, checked and transformed at once to normal wakefulness by external solicitations. It would at any rate be worth inquiry whether there is any stage in the path to unconsciousness, as produced by ordinary anæsthetic agents, during which the well-known phenomena of hypnotic suggestion could be in some degree reproduced.

But however that may be, the hypnotism which we know—where the change is independent of toxic substances and is comparatively stable when once induced—will always retain its peculiar character. And the tendency of recent inquiry has been, on the whole, to give further emphasis and precision to the view which would confine original hypnogenetic efficacy to special peripheral excitations, either of the organs of special sense or applied in the way of pressure to special points or tracts on the body. The reason of the specific cerebral change, the course of the nervous discharges which issue in the inhibition of central control or in the various muscular peculiarities which hypnotised persons present,—these are as unknown as ever; but the known points of attack by which the central citadel can be reached have multiplied; and where sensitiveness reaches a certain point, the operator can bring about a series of well-marked modifications of the trance-condition by physical manipulation, with almost as much certainty as the organist can manipulate his stops.¹ The very latest advance, however, would seem, at first sight, to have been in exactly the opposite direction, and to suggest a mode of affection in which no part is played either by peripheral stimulus, or by suggestion and expectancy tending, through association, to re-induce a state induced in the first instance by peripheral stimulus. I refer to the recently recorded French successes in the production of *sommeil à distance*—hypnotic trance due to the concentration of the hypnotiser's will without the 'subject's' knowledge, and altogether beyond the range of the 'subject's' senses. Not that this form of experiment is by any means new: the history of hypnotism—or mesmerism, as in this connexion it has been more often called—has presented a good many sporadic instances of such distant effects.² But even had the earlier reports been given with complete detail and with ample corroboration (which

¹ See especially Dr. A. Pitre's *Des Zones hystérogènes et hypnogènes* (Bordeaux, 1885).

² *Phantasms of the Living*, vol. i., p. 88; vol. ii., pp. xxvi. and 679-87. For another discussion of the subject see Mr. F. W. H. Myers's paper on "Telepathic Hypnotism," in the *Proceedings of the Society for Psychical Research*, pt. x.

has rarely been the case), it is inevitable that facts so startling, and so alien to scientific preconceptions, should depend for their acceptance almost entirely on *contemporary* evidence; and this being so, the recent well-attested cases are of extreme importance. They have indeed an importance over and above that which attaches to them in their hypnotic character. For they form a species in a general class of affections extending far beyond the limits of hypnotism, and embracing every sort of impression made by one person on another otherwise than through the recognised channels of sense. To such impressions the convenient term *telepathy* has been appropriated. And inasmuch as hypnotism, being a physiological and in some respects a medical curiosity, has a specially good chance of attracting the notice of trained observers to its various phases, it would not be surprising if the phenomena of distant trance-induction were the first branch of telepathy to win the confident and general adhesion of scientific men; as indeed they might have done many years ago, but for their association with the wild theories and grotesque pretensions of 'mesmerists'. It is probable also that France will continue to be the principal scene of these interesting observations; partly owing to a spirit of disengagedness and openness to new ideas, which seems specially to characterise the medical faculty of that country, but chiefly because the French temperament appears to be on the whole decidedly more susceptible than the English to hypnotic affections, just as Esdaile found the Hindoo to be; and there being a larger percentage of good 'subjects' to work with, it may naturally be expected that among them will be found the *rare aves* on whom the demonstration of the more delicate hypnotic phenomena must depend.

I can only describe the cases here in brief outline; they are naturally far more impressive in their original form (*Revue Philosophique*, for February and April, 1886).

(1) The first case is from Prof. Pierre Janet, of Havre, who observed it in conjunction with Dr. Gibert, the leading physician of that town. The 'subject,' Mme. B., was an honest and simple peasant-woman, enjoying good health, though liable, from childhood, to fits of somnambulism. During a stay at Havre, in the autumn of 1885, she proved easy to hypnotise, and at once showed in various ways a marked *rapport* with the person who had hypnotised her. For instance, while she was in the "deep state," insensible to all ordinary stimuli, the contact or proximity of the hypnotiser's hand would induce in her partial or general contractures, which a light touch from him could again remove—no one else being able to produce either effect in the slightest degree. After about ten minutes of deep trance she would pass into the "alert" or somnambulant state, from which she could be wakened into the normal state by the operator, and by him alone. It

was further noted that the hypnotisation was difficult or impossible unless the operator concentrated his thoughts on the desired result. Various experiments in thought-transference were completely successful : they took the form of strongly willing, during Mme. B.'s trance, that she should do some quite unlikely thing at a particular hour, the mental command being as punctually obeyed as if it had been expressed in words.

The attempts at producing *sommeil à distance* were suggested by the discovery already mentioned of the need that the operator's will should co-operate in the hypnotic process. It was then found that the will alone was sufficient. "Pressure of Mme. B.'s hand, without the idea of entrancing her, was ineffectual ; but the idea without the pressure succeeded perfectly." The next step was for Dr. Gibert to make the attempt when in another part of the town, and at a moment selected not by himself but by M. Janet or another friend. On two of these occasions M. Janet found Mme. B. in a deep trance, from which only Dr. Gibert could wake her ; on a third occasion she had felt the strong impulse to sleep, but had opposed it by putting her hands into cold water.

A series of successes of the same kind were obtained in the spring of 1886 ; three of which, witnessed by Mr. F. W. H. Myers and Dr. A. T. Myers in the spring of 1886, are described in the paper of the former referred to in last footnote. On one of these occasions Dr. Gibert, on the other two M. Janet, was the hypnotiser ; and on each of the three the 'subject' seemed clearly to recognise to which influence she had been exposed. Of this second series M. Janet writes that, putting aside mental suggestions of trance made in the presence of the 'subject' or in an adjoining room, "the trials made at a distance of at least 500 metres from Mme. B.'s abode amount to 21. I do not count a trial made in the middle of the night, under unfortunate conditions ; and I count as failures all experiments where the 'subject' was not found entranced on our entering her abode, or where the trance did not follow the mental suggestion within a quarter of an hour. These failures (each of which may admit of a complete explanation) were six in number. There remain, then, 15 precise and complete successes—extraordinary coincidences, whatever interpretation of them we choose to adopt." During this period, Mme. B. did not fall into a trance on any other occasion than those mentioned.

(2) The next account is from Dr. J. Héricourt, one of M. Richet's ablest assistants in the editing of the *Revue Scientifique*. The observations were made and recorded in 1878, though not published till last year, *pour des raisons faciles à comprendre*. The 'subject'—Mme. D.—was a young widow, in whom no trace of hysteria could be discovered. M. Héricourt found her exceedingly easy to hypnotise, and after about a fortnight could entrance her by his will alone, exercised without any word or gesture, and sometimes while Mme. D. was in the midst of an animated conversation with other persons. On the other hand, he found that all the ordinary physical processes remained completely ineffectual if his will was not that the trance should ensue. He soon began to extend the distance between himself and his 'subject,' and instead of producing the effect from one corner of a room to another, he could produce it from one house or one street to another. The first trial from a distant street was specially interesting. While concentrating his thoughts on the desired effect, at 3 p.m., Dr. Héricourt was summoned to see some patients, and for a time forgot all about Mme. D. He then remembered that he was engaged to meet her on the promenade at 4.30, but not finding her, he bethought him that possibly his experiment had succeeded, and towards 5 o'clock he vigorously willed that she should wake. In the evening Mme. D., spontaneously, and without

his having made the slightest allusion to her absence from the promenade, informed him that about 3 o'clock she had been suddenly seized by an irresistible inclination to go to sleep, though she never slept in the daytime. It was all she could do to walk into another room, where she fell on a sofa, and was afterwards found by a servant, cold and motionless, *comme morte*. The servant shook Mme. D. vigorously, but could not make her do more than open her eyes. All that Mme. D. remembered experiencing at this time was a violent headache, which disappeared towards 5 o'clock, the hour when M. Héricourt willed the undoing of his work.

This experiment was the first of a series, during which a number of persons had the opportunity of arranging the conditions and testing the results. The hypothesis of expectant attention was doubly excluded; for if M. Héricourt gave Mme. D. notice of his intention to entrance her, but actually willed that she should remain awake, she retained her normal condition, and imagined that he had failed.

(3) The next case, contributed by Dr. E. Gley, of 37 Rue Claude Bernard, Paris, is a record of some observations of his friend, Dr. Dusart, published in the *Tribune Médicale*, in May, 1875. The 'subject' was a hysterical girl of 14, whom Dr. Dusart found very susceptible to hypnotism. He early remarked that his passes were ineffective if his attention was not strongly directed to the desired result; and this suggested to him to try the effect of purely mental suggestion. One day, before the usual hour for waking the patient had arrived, he gave her the mental command to awake. The effect was instantaneous: the patient woke, and again, in accordance with his will, began her hysterical screaming. He took a seat with his back to her, and conversed with other persons, without appearing to pay any attention to her; but on his silently giving her the mental suggestion to fall again into the trance, his will was again obeyed. More than 100 experiments of the sort were made under various conditions, and with uniform success. On one occasion Dr. Dusart left without giving his usual order to the patient to sleep till a particular hour next morning. Remembering the omission, he gave the order mentally, when at a distance of 700 metres from the house. On arriving next morning at 7-30, he found the patient asleep, and asked her the reason. She replied that she was obeying his order. He said: "You are wrong; I left without giving you any order". "True," she said, "but five minutes afterwards I clearly heard you tell me to sleep till eight o'clock." Dr. Dusart then told the patient to sleep till she received the command to wake, and directed her parents to mark the exact hour of her waking. At 2 P.M. he gave the order mentally, at a distance of 7 kilometres, and found that it had been punctually obeyed. This experiment was successfully repeated several times, at different hours.

After a time Dr. Dusart discontinued his visits, and the girl's father used to hypnotise her instead. Nearly a fortnight after this change, it occurred to Dr. Dusart, when at a distance of 10 kilometres, to try whether he still retained his power, and he willed that the patient should not allow herself to be entranced; then after half-an-hour, thinking that the effect might be bad for her, he removed the prohibition. Early next morning he was surprised to receive a letter from the father, stating that on the previous day he had only succeeded in hypnotising his daughter after a prolonged and painful struggle; and that, when entranced, she had declared that her resistance had been due to Dr. Dusart's command, and that she had only succumbed when he permitted her.

(4) M. Ch. Richet has quite recently communicated to me privately a

record of some recent experiments of the same sort which he has made with M. Janet's 'subject,' Mme. B. On one occasion, early in the morning, he fixed the hour for his trial, 9 o'clock, by drawing a card at random; and found in the afternoon that Mme. B. had been seized with intolerable fatigue and somnolence while dressing, at 9.5. On another occasion he took a quite sudden resolution, and made the attempt from 6.25 to 6.45 P.M.; Mme. B. was entranced at 6.40, after a fruitless effort to ward off the condition by putting her hands in cold water. The full account will shortly be published.

In regarding such distant effects as these, it was of course inevitable, from the first, that an effort should be made to connect them with the similar effects produced by the hypnotiser in the presence of his 'subject'; and in the pre-scientific days of hypnotism this was easy enough. The prevalent view of hypnotic effects, among those who believed them to be genuine, was that they were produced by a specific 'magnetic' or 'mesmeric' force or effluence which radiated from the person of the operator in obedience to his will; and as it is easy to credit unknown agencies with incomprehensible attributes, the idea of this one as able to act at a distance without any loss of intensity was accepted as needing no particular justification. If such a peculiarity prevented the mesmeric force from being correlated in any way with the forces known to physicists, that would appear to its champions as so much to its credit. Not that I regard the idea of a specific hypnogenetic influence of a physical sort as absurd—I shall recur later to the question of such an influence acting within narrow limits of space; and even as regards its operation at any distance and across any obstacles, something might be said for a hypothesis which at least had the merit of recognising the telepathic facts, as long as no alternative was possible. This, however, is no longer the case. A conception which, in its simple and comprehensive form, is of very recent date, and which could never have been educed, free of all confusing elements, from the facts of hypnotism alone—the conception of *thought-transference*—has opened the way for another theory. Not one, indeed—I should most fully admit—for which any certainty or finality can be claimed; it requires assumptions, and depends largely on analogies; but one which, as an attempt at generalisation, reaches, I think, a considerable degree of probability in a region of facts so new and baffling that no generalisation can as yet well aspire to more.

To state my view in the shortest way, I believe that hypnotisation at a distance is truly analogous to hypnotisation in the presence of the 'subject,' but to one particular

form only of such hypnotisation—to wit, that exercised on a 'subject' who has been entranced on previous occasions, by the *suggestion* (either verbal or conveyed by the mere physical proximity of the operator) of the idea of trance. On this view, what happens is that the idea of the intended effect is transferred from the operator to the 'subject,' just as any other idea is transferred when the mind of A affects the mind of B otherwise than through the recognised sensory channels; and that it then works on the 'subject,' whom previous entrancements have rendered hyper-susceptible to its influence, precisely in the same way as the word *Dormez* works on him when addressed by the operator to his ears. That is to say, the trance supervenes owing to the peculiar liability of the 'subject' to react on a particular idea, *in whatever way* that idea may have gained an entrance to his mind, and not owing to any particular magnetic force or compulsion exercised by the operator. I hold, therefore, that the French experimenters have hit on the right word, *suggestion*, to describe the mode of influence—*suggestion mentale* in contrast to *suggestion verbale*; the two sorts of suggestion being in their hypnogenetic power identical, but differing radically in the earlier stage—in the mode in which the suggestion obtains access to the 'subject'. The difference is not then (as formerly conceived) between two modes of propagating 'mesmeric' force, by passes near at hand or 'will' at a distance. It lies quite outside hypnotism and the particular effect of hypnotic trance. It is a difference more radical than those who have believed in mesmeric action at a distance have hitherto imagined, but also less mysterious; inasmuch as this distant influence can now be referred to a large general class of phenomena, fundamentally alike through all varieties of circumstance, and in this way confirmatory of one another.¹ In a word, the difference between verbal suggestion and mental suggestion in hypnotic cases is simply the difference

¹ There is at present this difficulty in discussing any special topic where the ideas of telepathy and thought-transference have to be introduced—that to many readers the terms may convey no meaning, or may appear simply as symbols of what is ridiculous and impossible; while yet it would be hopeless to attempt to demonstrate the realities which they represent in the course of a paper like the present. The largest collection of evidence on the subject which has so far been published will be found in *Phantasms of the Living* (Trübner & Co.), and I am here treating the central positions of that book as if they were solidly established. Feeling, as I do, such confidence to be justifiable, I refrain from encumbering these pages with apologies for it; but I am very far indeed from assuming that every candid mind is bound to share it.

between the two broad classes of communication which exhaust all possibilities of thought-conveyance between man and man, and which may be conveniently distinguished as the *physical* and the *psychical*.

I hasten to explain what I mean by this distinction, which is very liable to be misunderstood, though it would be difficult to express it shortly in any other terms. It is by no means to be taken to imply the absence of a physical basis for the 'psychical' transferences. The word 'psychical' does not involve any hypothesis as to the manner of transference, whether as connected or as unconnected with physical events; it implies simply the fact that particular ideas in two minds have corresponded in such a manner as to lead to the conclusion that they were connected as cause and effect, though the recognised channels of sense have not been employed, and there has been no peripheral stimulation passing from one organism to the other. Now the condition from which we should most readily conclude that there was such a causal connexion between the two ideas is clearly that they should *resemble* one another. When one organism acts peripherally on another—when A hits B, for instance—we connect A's anger with B's pain without requiring to perceive any resemblance between the two affections; but apart from ascertainable physical communication, it would not occur to us to regard a particular idea of B's as due to a particular idea of A's, unless they presented at least some point of identity. And the facts in *Phantasms of the Living* afford, I think, strong grounds for supposing such resemblance to be the general law of telepathic action. In cases of experimental thought-transference the resemblance is obvious and often complete; and the same is true of those 'transitional' cases where the agent sets himself to impress some idea or percept on some one at a distance; while in the 'spontaneous' cases it is rarely that there is a difficulty in tracing the effect on the percipient's senses or emotions to an idea reproduced (though it may be below the level of consciousness) from the agent's mind. This at once suggests the particular character which, *supposing* the psychical transference to be dependent on a physical effect of one organism on the other, that physical effect would naturally be held to possess; it must apparently be of the nature of vibratory energy transmitted through a medium—that being the only means by which changes in one piece of matter are found to reproduce themselves in a distant piece of matter; and its place of origination in one organism and place of operation in the other must be the brain. Whether such a mode of physical

affection exists or not is an open question. The negative answer involves the difficulty that, whenever the psychical transferences occur, a certain nervous process, correlated with the impressed idea in the brain of the recipient, presents a close similarity to a certain nervous process correlated with the impressing idea in the brain of the transmitter, and would not have presented that similarity but for the transmission, while yet the twin processes are united by no physical *nexu*s. The affirmative answer involves the difficulty that distance is not known to have any effect on the transmission, which is contrary to what obtains in all known exhibitions of vibratory energy. (Both horns of the dilemma can of course be avoided on the supposition that the accepted view as to the necessary correlation of psychical with nervous events is only a rough approximation to a more complete truth, which the limitations of our view of matter and physical forces keep out of our sight.) But if it exists, this mode of physical affection is at any rate something *per se*; it is remote from any of the recognised modes, to which eyes and ears and nerve-endings are indispensable instruments, and in which the effect on the impressed organism (to wit, certain chemical explosions of nerve- and brain-matter) bears no resemblance whatever, but only a *correspondence*, to the physical facts—visible or audible, or tactile or olfactory—in the impressing organism. And this difference is so radical that, for purposes of terminology, the neglect of the hypothetical physical basis, and the appropriation of the word ‘psychical’ to transferences where the psychical facts are patent, while no physical fact of any sort is cognisable by our senses or our instruments, seems as defensible as it is convenient.

The above theory has been stated in general outline only, and needs guarding and amplifying in several ways. But I must first pause to consider an objection that may be made to it *in limine*. It may be said that, in opposing the conception of thought-transference, pure and simple, to that of a physical effluence or current of force, operating across indefinite spaces, and neither nullified nor confused by other physical effluences or currents proceeding from other human beings on its route, I have simplified the issue over-much, and that there is a third possible hypothesis:—namely, that a force is set in operation which is truly psychical, in the sense that it originates in the operator’s mind, while its medium of transmission, if it has one, remains unknown and unguessed, but which is different from and independent of any known psychical or physical agency; the ultimate

facts being simply that the distant operator *wills* that the 'subject' shall be entranced, and that in consequence he *is* entranced, without any middle term of mental suggestion or anything else. This hypothesis underlies much that has been written about the relation of will-power to mesmerism; and has been strongly suggested in our own day in much of the language used about "psychic force". It is what Schopenhauer advocated in his description of "the magnetic or generally magical influence proceeding from intentional willing";¹ for he speaks of this will-influence as "*toto genere* different from every other"; and this although he seems to have encountered and fully admitted certain facts of mental suggestion proper, having in the preceding sentence spoken of communicated (telepathic) dreams, and of community of thought between mesmeriser and 'subject'. The view clearly involves nothing less than a complete breach in the physical order. The psychical cause and the physical effect on the organism of another person are as completely disparate as my resolve to kick a chair over and the fallen chair, while no physical *nexus*, parallel to the kick, exists between them. Or rather, since the changes in B's organism, being matters of intimate physiology, are changes which A, who is supposed to cause them, knows and thinks nothing about, what he is supposed to do is precisely analogous to building a stone wall at a distance from where one is standing by an exercise of the will which involves no idea of moving the stones. Schopenhauer, indeed, might be able to conceive this as "*an actio in distans* which the will, certainly proceeding from the individual, yet performs in its metaphysical quality as the omnipresent substratum of the whole of nature". But we are not all Schopenhauers; and those who are unable to reach the substratum of nature with his clue, and to whom even his "will of the world" appears something of a will-o'-the-wisp, may feel the difficulty here propounded in relation to the individual will to be a serious one.

I do not pretend, however, that the theory of "psychic force," as opposed to that of mental suggestion, need be held in this extreme metaphysical form. The distant effect might be referred to A's volition in virtue, not of its "magical influence," but of the cerebration which accompanies it; and either (1) the cerebral events involved in B's trance

¹ *The World as Will and Idea* (Haldane and Kemp's translation), vol. iii., p. 76.

might be held to be directly due, though dissimilar, to the cerebral events in A, or (2) some prior and equally dissimilar cerebral event in B, accompanied by some unknown psychosis dissimilar to A's (*e.g.*, some mood or mode of feeling presenting nothing of the nature of idea), might be assumed as an intervening link.¹ As regards this notion of an unknown psychosis, if *a priori* likelihoods had any application to modes of psychical interaction, one might at any rate feel it unlikely that terminal events so closely related as B's trance and A's desire for B's trance should be causally connected by an unknown psychical state resembling neither; but I should be content to urge that the hypothesis is gratuitous, when we remember that there is one *known* psychical state which is known also to lead on naturally to trance—namely, that *idea* of trance, the unique effect of which can be so completely tested by *verbal* suggestion. But a graver objection—and one which applies to both the above hypotheses alike—lies in the nature of the physical assumption. No doubt, it may be said that anyone who can entertain for a moment the idea of brain acting on brain at a distance has no business with speculative scruples—that, finding himself upon such unknown ground, he need not hesitate to go further, and imagine a complete difference between the physical cause and the physical effect. But even if a needless step were justified merely by being taken in the dark, we should at least observe that this particular step breaks away, not only from the analogy of verbal suggestion, but from the only conception of a physical *nexus* which has in any degree commended the hypothesis of physical communication between brain and brain to scientific minds—the conception suggested by the analogies of tuning-forks, communicated light-vibrations, induced magnetism and induced electric currents.² If that con-

¹ A third alternative is possible—that some cerebral condition in A (*e.g.*, a certain initiatory tendency towards trance in himself) is reproduced in B, without psychosis. This would still leave clear my fundamental distinction (depending on similarity of primary effect in recipient to cause in agent) between telepathic communications and all others. But the reasons for regarding psychosis in B as probable are given a little later.

² There are, of course, cases where vibratory energy does not reproduce, at the place where it takes effect, the exact form of its source: as where light produces chemical changes. But when it is remembered that the place of origin and place of action of the nervous force now in question are similar pieces of matter—the same in their composition, in their form, and in the energies normally connected with them—the other analogies seem paramount; especially when we remember the electrical character now generally attributed to nerve-currents.

ception have any validity, to conceive that the brain-changes correlated with the desire of A, who remains normally awake, to entrance B at a distance, could directly cause the quite different changes which B's brain undergoes during entrancement, would be like conceiving a struck tuning-fork as able to set into vibration a fork of a different pitch, or the proximity of magnetised iron as able to convert a piece of wood into a magnet. And indeed it is hard to conceive how, if sympathetic action be excluded, one brain should ever get touch or *prise* of the other: it is just the sympathetic response which is the condition of response at all. Why, again, should A's cerebration have more virtue than anyone else's, no idea of him *ex hypothesi* being conveyed? His peculiar influence has been established entirely by a particular association of ideas in the 'subject's' mind; that is the only part of the hypnogenetic process with which his personality is identified; and if such a thing existed as a specific physical power which would enable that part of the process to be skipped, and the 'subject's' brain to be attacked in a new way at some new or lower point, no ground appears why A and A alone should possess it. It must be clear, I think, how different in kind these objections are from those which were admitted as applying, on the physical side, to the conception of mental suggestion or thought-transference. For there, even if we rejected (on account of the distance between the two brains) the notion of a direct physical *nexus*—even if we felt driven to regard the changes in B's brain as immediately conditioned, not by the changes in A's brain, but by the psychical appearance of the idea transferred to B's mind—such conditioning in B would involve only the world-old correlation of psychical with nervous changes in the individual; a correlation which, however variously interpreted, is recognised as universal, or at any rate as the rough expression of some deeper reality which is universal.

So far, then, there appears no very plausible alternative to the view which finds the key of telepathic hypnotism in actual suggestion, conveyed as a transferred idea from A's mind to B's. But this view can be reinforced by a further consideration. As a matter of fact, there is no instance on record (except Esdaile's mentioned before) of a person's being hypnotised from a distance whom the operator has not previously hypnotised by some ordinary process. On the theory of mental suggestion, this is of course just what we might expect. Since a person new to hypnotism has never been hypnotised for the first time by the mere idea of the trance ver-

bally suggested or read of in a book, it would be remarkable if the idea when telepathically suggested were able to take effect on him. But on any theory which excludes mental suggestion, it is difficult to see how the fact of the 'subject's' previous hypnotisation could make a difference; for apart from mental suggestion, he would not be attacked at any special vulnerable point. Such a point consists simply in the idea of entrancement by A (localised in particular brain-changes), which has been specialised and sensitised by association with the actual fact of such entrancement on previous occasions; and in the supposed case, *ex hypothesi*, no idea of entrancement makes its appearance. Now, except when attacked at the vulnerable point, there is no reason why previously-hypnotised persons should be more liable to be entranced than anyone else—the existence of the vulnerable point being simply an explanation of the fact that they *are* so liable. Thus, to take another case, if a strong man has felt giddy and has tottered when standing over the brink of precipices, the idea of standing over a precipice may afterwards make him feel giddy and totter; but he is not more given than other people to tottering when walking across the room, and would oppose as much resistance as other people to an external push. Just so, apparently, should previously-hypnotised persons oppose as much resistance as their neighbours to the supposed push or compulsion of an external will, or to other telepathic influences which differed in character from any to which they had previously yielded; so that the confinement of the hypnotising effect of such influences to that particular class of persons would need fresh assumptions to explain it.

We may now proceed to examine the hypothesis of mental suggestion at a distance a little more in detail. First, what are we to suppose the contents of the transferred idea to be? The answer will naturally be found by examining the contents of the idea which is found to be hypnogenetically effective when suggested through the recognised channels of sense, in the presence of the 'subject'. And it at once becomes evident that something more than the mere idea of trance is included. That idea might be suggested by reading a description of a hypnotic experiment in a book; it has often been suggested when hypnotic phenomena have been described and discussed by persons in the same room with the 'subject'; but in such circumstances it has not been found to produce any effect. Is the additional condition, then, that the idea shall be suggested with some show of authority or insistence, as in the tone of the word *Dor-*

mez? But let someone who has not previously hypnotised the subject pronounce such a command as authoritatively as he likes, and no hypnotic result will follow. I would not indeed venture to assert that it is impossible that trance should be thus induced in an extremely sensitive 'subject'; but I cannot discover that it ever *has* been so induced. The necessary condition then seems to be that the suggestion or command shall come from the original operator; that is to say, *rapport* is involved—at any rate to the extent of memory of a past relation between the two parties. But here there seems, at first sight, a certain difficulty in connecting the near (or physical) with the distant (or psychical) suggestion. In the former case the idea of the operator in the 'subject's' mind, and a sense of the past relation with him, is practically ensured by his actual presence and voice; the 'subject' cannot help associating the command, when it comes, with the person who gives it. But when the two parties are separated, and the command is telepathically conveyed, there is nothing to connect it in the 'subject's' mind with the person who transmits it, unless an idea suggestive of that person is simultaneously transmitted. Now among the recorded examples of hypnotisation at a distance we do undoubtedly find a certain number where such an idea seems clearly to have been transmitted, since it unmistakably appears in the 'subject's' consciousness. This was the case with Mme. B., who was able to distinguish whether it was Dr. Gibert or Prof. Janet who was affecting her; and the occasion when Dr. Dusart's 'subject' was conscious of his inhibitory influence may fairly be referred to the same class. But in other cases the trance-condition supervenes without any conscious occupation of the 'subject's' mind with the person who is influencing him. We might even go further and say that it supervenes without even the idea of *itself* being presented as an obviously separate and prior condition. We cannot, as in cases of verbal suggestion, point to the moment when the idea obtains lodgment in the mind, and trace its effects from that moment. The consciousness of the idea, so far as it exists, is indistinguishable from the general mental condition of on-coming trance.

Now as regards the mere fact that the mental suggestion is truly transferred, even in the cases where the recipient is not conscious of it, a proof of the strongest kind is afforded by the cases where he *is* conscious of it. It seems almost inconceivable that experiments in telepathic hypnotisation which agree in every point except this of the 'subject's'

consciousness should involve radically different processes. But if we look a little deeper, this special point—the effectiveness of an idea which does not make any separate and distinct impression in consciousness—will probably not be felt as an objection to the theory of telepathic suggestion by anyone familiar with the phenomena of telepathy in branches unconnected with hypnotism; I might almost say, to anyone familiar with the phenomena of mere automatism—since the production by automatic writing of words and intelligent sentences, which the writer himself has afterwards to read in order to learn what they are, is a sufficiently well-recognised phenomenon. But in such cases it can scarcely ever be proved that what is written is originated, at the moment, by any specially directed mental activity; the ideas belong, perhaps, to the vast crowd which have had a previous existence in the mind, and have left their impression on the brain, and it is merely owing to some accident of cerebral circulation or chemistry that the impressions belonging to the particular ideas which appear in the writing were revived at that particular minute; a minute later, and it might be the turn of others to be similarly revived. We must have recourse, therefore, to telepathic experiments—where the idea is then and there transferred from another mind—for the requisite proof that a new idea, conditioned by something other than the spontaneous workings of the brain, may produce marked effects without making any appearance in its receiver's consciousness. Experiments yielding this proof have not, so far, been numerous—it must be remembered that deliberate telepathic experimentation is in its veriest infancy; but I am content to rely on those recorded in *Phantasms of the Living*;¹ and especially on the remarkable series carried out by the Rev. P. H. Newnham and his wife, where a very large number of questions mentally put by him were relevantly answered in writing, produced by a planchette on which Mrs. Newnham's hand was laid, without her having an idea, in any case, what the question or the answer was. The production of hypnotic trance by an unconscious idea² can scarcely be held to be a more extreme instance of “underground” mental activity than this.

¹ See vol. i., pp. 63-79, 84, and vol. ii., pp. 670-1.

² It is difficult to avoid this expression, but I of course do not mean by it mere ‘unconscious cerebration’. My whole view of telepathic transference is that it is a *psychical* event—with a physical side possibly, but psychical certainly; consequently the idea transferred, in this as in every other case, must have complete psychical reality. In calling it unconscious,

This argument naturally applies equally to both the ideas which we have supposed to obtain a lodgment in the 'subject's' mind—the idea of trance, and the idea of the distant hypnotiser. But as regards this latter idea, there is a further difficulty. For it may be said, and probably with justice in most cases, that the mind of the hypnotiser himself is not consciously occupied with the idea of himself; he is concentrating his thoughts on the 'subject' and on the effect which he desires to produce, not on his own personality, or his own unique relation to the 'subject' as the source of the effect. And we cannot at once answer this objection by the assumption that ideas may be telepathically propagated from an unconscious part of the transmitter's mind, just as they may take effect in an unconscious part of the recipient's mind. For supposing the transmitter's mind to include an 'unconscious part' which is more than a mere general name for the legion of past ideas that are now all alike latent and revivable—an 'unconscious part' where positive activities are possible, and one idea can take precedence of others, just as in the conscious part,—we still need some reason for the activity and prominence assumed, seemingly, by this particular idea of himself, just at the moment when it suits our theory that it should come to the front. Readers of *Phantasms of the Living* may recall that the same problem presented itself in respect of a large number of the cases of 'spontaneous telepathy' there recorded, where an idea of the 'agent' was most vividly presented to the 'percipient' (often even externalising itself as a hallucination of the senses), while yet the 'agent's' mind at the time was presumably not dwelling on himself or his appearance, and indeed was sometimes not ostensibly dwelling on anything at all, being in a state of lethargy or coma. This fact may seem clearly to separate such spontaneous cases from the other class, including the majority of cases of experimental thought-transference, where the definite idea on which one mind is concentrated is reproduced in the other; and in a criticism of the telepathic theory which appeared in MIND ix. 607, it was not unreasonably suggested that the differ-

therefore, I am, for convenience, confining the meaning of 'conscious' to the mode or plane of ordinary human experience—in which we may surmise the true consciousness of the individual to be only partially manifested. The facts of telepathy drive us, I think, to conceive a segregation of conscious states more pronounced than that which examples of double or alternating 'consciousness' had previously suggested; and before long philosophy may probably find one of its chief battle-grounds in questions as to the existence and nature of their underlying unity.

ence was so radical as to make the inclusion of the two sets of facts under a common conception decidedly difficult. I fully admit this, if the conception is to be a *physical* one: I admit, that is, the difficulty (which better knowledge might overcome) of formulating a theory of 'brain-waves' which should make it seem as natural that B should receive a telepathic impression of A, who is thinking of other things or not thinking at all, as that B should receive a telepathic impression of a card on which A is painfully concentrating his attention, or of a scene which engages A's eyes at the moment when he is passing through a crisis of emotional excitement. But until physics and physiology can offer some explanation of the former fact on its own account, I do not think that their failure to supply an obvious ground of connexion between the former fact and the latter is a reason for doubting the reality of a connexion which on psychical grounds is strongly suggested. And keeping to the psychical aspect, we may say that the idea of self is an altogether exceptional one, occupying, even when it is not prominent, a permanent place in the background or middle distance of consciousness; and that the idea of its corporal embodiment—*i.e.*, of that expression of it which is almost inevitably represented in other people's ideas of it—is associated more or less closely with a vast number of the items of thought and feeling which make up everyone's daily experience. Nor does the hypothesis of a wider self, embracing planes or stages of consciousness beyond the consciousness of normal experience, involve anything which would affect this exceptional position of the idea of self; for the segregation of conscious states which that hypothesis supposes, in no way involves a disruption of individuality; and the pervading sense of association with an objective organism may perfectly well be common to all the states. It cannot then, I think, seem very surprising if those special mental activities which at special seasons condition a telepathic transfer—whether at the approach of death, or in the shock of sudden danger or excitement, or in the concentration of attention and will necessary for an experiment in distant hypnotising—are accompanied by a special self-realisation, a true quickening of the idea of self, even though that idea does not detach itself on the plane of consciousness which limits our ordinary conception of personality.

I am aware of the risk of paying one's self with words in such speculations; and I specially recognise the danger of physical analogies, such as I have just used in the word *plane*. Modes of expression derived from a known order of facts

can never really seem explanatory of a novel order till their connotation has grown—that is, till the novel order has ceased to be novel; and meanwhile pseudo-explanation is only too easy. But the phenomena of telepathy are there, and, however much hidden from our sight, the process of causation must be there also; and some indulgence may be claimed for a hypothetical picture of that process which is confessedly crude, as long as its crudeness is the result of an attempt to make its elements distinct. Now, the notion of segregated departments of mental life, of which a more complete intelligence can perceive the unity, is not an indistinct notion, though probably it very imperfectly represents the facts; and if it has any truth at all, then ‘plane of consciousness’ has a true psychical meaning, and is more than a slippery metaphorical phrase. And if the plea of necessity will excuse the use of *physical* terms, so, I think, will it excuse the use of *metaphysical*, in spite of a certain awkwardness in the actuality suddenly given to somewhat recondite notions. For in truth the problems which telepathy presents lie on the borderland of psychology and metaphysics; and in attacking them psychology has to trespass, or rather to make distinct claims, on the metaphysical territory. It finds itself driven, by the facts under observation, to tie down to actual individual cases ideas—like those of unconscious mind and of a transcendental self—which have dwelt so continuously in the misty heights of purely abstract reasonings, that they present an odd, incongruous appearance when brought to earth. The “philosophy of the unconscious” is shy of adapting itself to the unconscious part of Mr. A.: it seems hardly worth while for the ‘self’ to be transcendent, if all that it is to transcend is the ordinary phenomenal consciousness of Madame B. Yet, Mr. A. and Madame B. are types of humanity; and in examining the bond which unites them, we are really on the traces of an idealism which is metaphysical enough in all conscience, as pointing to a potential unity of all similarly constructed minds, but which is nothing if not concrete, and a key to nothing except immediate facts of individual experience.

(To be continued.)

IV.—THE LOGIC OF CLASSIFICATION.

By Rev. W. L. DAVIDSON.

CLASSIFICATION is nearly allied to Definition, and, in practical application, the two processes are apt to run into each other. Thus, in changing the meaning of a well-understood word, a reference to a wider range of objects than were formerly denoted may be the distinctive feature, as much as a fresh analysis of the particular notion. Take as an example the word 'concrete,' and compare its Hegelian signification with the commonly-accepted English use, or compare the evolutionist's 'good' with that of the intuitional moralist, and it will be found that *denotation* is a potent factor in the explanation of the difference. Denotation, on the other hand, is not the sole principle that determines Classification. On the contrary, wherever you have a hierarchy of classes, or any approach to it, you have a distinct reference to *connotation*, and the graded system has no meaning except when interpreted as expressive of the inverse ratio of comprehension and extension.

This the formal logicians, to the extent that they recognise the two processes at all, have unquestionably seen,—although they do not explicitly state it. Hence their treatment of Definition and Division in immediate connexion with the Five Predicables; and hence such a fact as this—that a tractate like Boëthius's *De Definitione* is in great measure one also *De Divisione*, while his tractate on Division is in reality one on Definition. Hence, further, the fact of the impossibility of keeping Fallacies of Classification—such of them at any rate as are concerned with the grouping together of things that have only unimportant points of similarity—in entire separation from Fallacies of Definition, so far as concerned with the ambiguities of language. It is notorious that we may equally well explain an *equivocal* term as one that is ill-defined or as one that represents a badly-formed class: denotation or connotation equally gives us the characteristic.

By Classification are understood two things—(1) the *formation*, (2) the *location*, of classes. The second process implies the first, but the first may stand alone without articulate reference to the second. Both, however, proceed upon the same principle of marking agreements and differences, of

placing like with like and keeping separate things that are dissimilar ; but it is in the second only that the idea of gradation comes in, and so the conception of higher and lower in generality. Thus, the letters of the alphabet, as they stand in the order familiar to us all, are unclassified. There is no reason why A should precede B, or B should be followed by C : we might equally well begin with B as with A, with M or with P, as with either ; and but for the matter of habit, a "beta-alpha" would be as appropriate as an "alpha-beta". We proceed to classify only when we group distinct letters together, on the score of their possessing some striking peculiarity in common ; as when we pick out the vowels from the consonants, or when we form classes of labials, dentals, liquids and so forth. Not yet, however, have we reached the full sense of classification. This would be attained only if we could arrange the groups of letters on some distinct plan, so that each group should be seen to occupy its own proper place, and to have definite relations to all others around it. Speaking strictly, we form a class when we bring together a collection of individuals held in union by the bond of one or more points of community, and when we take care that nothing that is destitute of the point or points of community is admitted into the class : we classify when we arrange classes thus constructed on the principle of higher and lower, wider and narrower. Hence, Classification naturally assumes the form of a series of grades. We ascend from the lower to the higher, or descend from the higher to the lower, in a continuous order ; and the relations that obtain between groups are those of subordination, superordination and co-ordination. One group is subordinate to another when it is contained under that other as a part of a compound whole, whose mark it possesses but which has in addition distinguishing characteristics of its own. One group is superordinate to another when it is regarded as the higher under which the other takes its place as lower. Two or more groups are co-ordinate when they stand upon the same level or occupy positions of equal authority—such as Orders of different Classes, in botany, or Genera of different Orders. And if we ask what is the full signification of this classifying process, we find it is simply this—that the different groups have different degrees of generality, and that the greater the generality the less the meaning conveyed, while the less the generality the richer the meaning. Thus, we take the grade 'Class' in the botanical grouping. This is a division very high in the scale, and includes an enormous number of sub-divisions

under it—sub-class, cohort, order, &c. : and from the very circumstance that it stands thus high—in other words, from the fact of its great generality—it can only give us a very few attributes (five at most) characteristic of the whole mass of included particulars,—and this not without striking exceptions. But let us go a step or two lower down, let us take the ‘Order’; and what do we find? We find that, by descending, we have reached a narrower grade; and by this very fact of narrowing the grade—in other words, of reducing the number of included members,—we find we have increased the number of things we can predicate concerning these members, so that the characteristics that go to form the Order-mark are far more numerous than those that go to form the Class-mark. And so with the other grades as we descend: until at last we reach the Species (the unit of Classification, as the Individual is of Definition), where we have the minimum of extension with the maximum of meaning; for the species, besides exhibiting the characteristics of the various grades above it, has numerous features peculiar to itself. In this way, we see at once the principle of the whole process. It is:—The wider the group, the greater the number of included members, but the less the meaning conveyed respecting each member; and conversely. And the utility of the process consists in this:—(1) that it throws intelligibility into a mass of materials that might otherwise remain unmanageable and incomprehensible, and is thereby an aid to knowledge; (2) that it helps the memory,—more especially in cases of enormous complication (such as we have in zoology and botany), where nothing would answer but a regular graded system of great perfection, group rising above group like the rounds of a stupendous ladder; (3) that it facilitates the discovery and display of laws of coexistence. And this holds of all classification that is worthy of the name. We usually confine it to the Natural History groupings: but it is equally true (though less conspicuously) of every grouping, of whatever materials, that is done upon a scientific basis—from the classifications of things in ordinary life with a view to action, to the high abstract classifications of the sciences, where theory in great measure supersedes practice.

This being so, it may not be amiss to inquire into the principles that govern scientific classification, and how far, under the most favourable circumstances, they can carry us.

I.

The first may be formulated thus:—That our plan of

grouping proceed upon a *rational* principle; by which is meant a principle the opposite of frivolous,—the test being that it yields us luminous results.

It is possible, no doubt, to bring together things or to arrange objects in a vast variety of ways; but when the arrangement is based upon mere fancy or simply follows our caprice,—when it is absurd, ridiculous or grotesque,—it is not, in any proper sense of the word, a scientific operation, and cannot claim consideration at our hands. Before it is anything beyond a mere exercise of perverted ingenuity, it must disclose a guiding and illuminating plan—one that throws real light into the particular collocation.

We may take as an illustration the astronomer's arrangement of the stars into constellations. Nothing may, at first sight, appear more arbitrary or more superficial. It requires a considerable stretch of the imagination to discern Orion or Auriga or Boötes in the groups that bear these names, while even Perseus and the Greater Bear are by no means self-evident impersonations. Yet these various clusters, although the naming of them and the conceptions attached to them may be entirely fanciful, serve a very high purpose in throwing method into the seemingly chaotic, and in disclosing numerous valuable correlated facts. Take, for instance, the bright star in Orion called ' *α Orionis*'. The very fact that this heavenly body is designated a 'star' gives us, of course, a certain amount of information: it is thereby shown to be differentiated from planets, comets, &c., and justifies us in predicating of it two things—scintillation and apparent immovability with respect to other stars. The further fact that it occurs in Orion adds still more to the signification; for Orion is the most striking constellation in the heavens, and occupies a certain definite relation to the Hyades, the Pleiades and other surrounding bodies. When further we know that it shines on Orion's right shoulder, we have intimation of its exact sidereal position; while, being a star of the first magnitude in that position, it is known to form with Procyon and Sirius an equilateral triangle of remarkable brilliancy and beauty. More would be connoted by it still, if we allowed ourselves to leave the purely astronomical ground and to take account of human superstitions and traditions. The very name Orion would carry us back to the days of ancient Greece, and might suggest to us much as to Greek mythology and the connexion of the early Greeks with astronomical studies; or we might take the Semitic name Chesil (*fool*), and then we should be reminded of the fate and story of Nimrod "the mighty hunter". But,

nomenclature apart, the grouping itself is astronomically useful ; and, as it accomplishes the threefold object of aiding the understanding, of displaying coexistences and of helping the memory, it must be pronounced satisfactory and scientifically unimpeachable.

Again, take an easy instance from Botany. The full classifying scheme of the Natural History sciences will be considered later on ; but, meanwhile, let us illustrate the one point of a luminous principle from the well-known Knot-grasses. Besides other modes of arrangement, a group of these might be formed so as to disclose a serial development in one particular part—the flower. At one end would stand Common Knotgrass, with abundant sessile flowers, clustered in the axils of nearly all the leaves on the stem ; at the opposite extreme would stand Persicaria, with its short dense terminal racemes. Between the two would come Climbing Knotgrass and Copse Knotgrass, each possessing the axile floral cluster of Common Knotgrass and the terminal raceme of Persicaria : each, too, with the flower coloured like that of Common Knotgrass (*viz.*, green, with a white margin), but with the *lustrous* seed-vessel of Persicaria. Here we have an obvious evolution of parts—which the mere placing of the groups in this relation serves exactly to bring out.

So, too, with the three popular species of Primroses—Common Primrose, Oxlip and Cowslip,—which, when arranged in this order, show a marked gradation in two separate points, the leaf and the flower. The leaves, although all agreeing in being wrinkled and toothed, are easily distinguished by their difference in shape. The flowers are even more sharply differentiated. Those of the Common Primrose are solitary, borne upon longish slender pedicels, which rise apparently direct from the root-stock, having the corolla of a pale yellow colour, with broad flat limb and contracted throat with thickened folds. Those of the Oxlip rise from the root-stock in clusters upon a short stem or peduncle, with corolla of a pale yellow colour, but limb concave, throat open and destitute of folds. Those of the Cowslip are also clustered, but upon longer peduncles ; have corolla small, funnel-shaped and of a buff-yellow colour ; limb cup-shaped ; throat open, with folds obscure. The grouping is obviously instructive, and possesses systematic and scientific value.

Once more, let us take the books in a library. These, clearly, might be arranged in several useful ways. They might be grouped according to the subjects of which they

treat, or they might be grouped according to the language in which they are written, or they might be grouped according to the names of the authors alphabetically arranged. Each of these systems might plead a certain value, for even the last of them might conceivably bring out curious and practical statistical results. But we should hardly regard as legitimate any arrangement that proceeded on the mere colour of the bindings, or the number of letters in the authors' names, or the year in which the treatises were published, or the number of pages or of sheets that they contain. The very idea of a Library (as distinct from a mere place for storing books) excludes such arrangements and brands them as ridiculous or capricious.

In like manner, we may arrange the higher animals according to their nervous system or according to their intelligence ; but if we selected such an attribute as hairiness as the basis of our classification, we should lay ourselves open to the charge of arbitrariness or frivolity.

From this it will be seen what an arbitrary or frivolous classification really means. The arbitrary and the frivolous include not merely the fanciful and capricious, but also the accidental in all its forms,—more particularly as the inconstant. It is accidental to a book what the colour of its binding or the number of its pages is ; and hairiness is a variable attribute among animals, differing even among individuals of the same species to almost any extent. No merely individual trait, no variable feature, no simple accident, can afford a rational basis of classification ; and all groupings that proceed upon one or other of these must be pronounced trifling and unscientific.

Now, it is exactly from being based upon a trivial principle that many classifications, which from a purely formal point of view would be otherwise unimpeachable, are unsparingly condemned by the scientific classifier. It must be carefully noted that pure logical Division and Classification are not, in their whole length and breadth, coextensive. On the contrary, it is sufficient for a logical Division,—(1) that it be exhaustive, (2) that the parts be severally less than the thing divided, and (3) that the principle of Division be such as to secure that the parts be mutually exclusive. But what the character of the principle of Division itself is, beyond this fact of mutual exclusion, does not come within the ken of the formal logician. So that, when the formal logician adds to the three foregoing rules this fourth,—*viz.*, (4) that the principle of Division be important and essential,—he does so by a sound enough instinct, but quite inconsistently with his own conception of the nature and scope of Logic.

The point, then, to be insisted on at this stage is,—that, in order to a proper grouping, there must be a rational or light-giving principle; and that wherever you have this, you have to that extent a satisfactory classification, and wherever this is wanting, you have no classification of any scientific value.

II.

Classification would be a comparatively easy affair, if it demanded nothing more than regard to this simple rule of seeing to it that the grouping is of a light-giving character. Unfortunately, classification is frequently a much more difficult operation than could be satisfied by this simple canon. Not seldom there are competing principles even within the limits of the light-giving; and these competing principles clash. Where this is so, the rule to be followed is:—Arrange the groups so as to bring out the greatest amount of information, having regard to the materials manipulated and the end in view; in other words, classify upon the greatest number of correlated properties.

We may begin with the simple case of the archæologist and his Relics. Simple as this case is, it shows several complications. For, in arranging the relics found in a primitive habitation—say a lake-dwelling or a cave—the archæologist has more plans than one open to him; though, when you consider the nature of his science and his leading object, there is one that is pre-eminently suitable. He might, for instance, accept the commonly-recognised division of Nature into the three kingdoms of mineral, plant and animal, and arrange his “finds” according as they fall under one group or another. As, however, one of his chief ends is to determine traces of man in the non-historic times, and to ascertain his habits and intelligence, the range of his acquisitions and the stages of his advance in civilisation, he finds that this ground of classification does not throw the full light upon his subject that he would desire, or give him the revelations that it is possible to obtain; and so, if he be wise, he discards it as a main basis of grouping and has recourse to another which pays regard to the *utilities* of the objects under consideration. Accordingly, he arranges his relics in two leading divisions—*viz.*, (1) relics that have been things of *use* to man, (2) relics that are simply *remains*; employing the *material* of which these relics consist only in his minor subdivisions. In this way, bones, for instance, whether human or animal, come under the second division, if they are simply remains; but under the first, if they bear evidence of

having been used for domestic or other purposes,—if, *i.e.*, they have been obviously made into *implements*. Under the first head, too, would come all inorganic objects that bear the marks of human workmanship upon them. Then, after utilities, would come the material out of which the useful articles were formed—stone, bone, horn, wood, &c.; but only in a subordinate position. Thus does the archaeologist make the most of his subject; for thus is indicated to us in any given case, not only that we have here an object that has come down to us from the past, and that may be identified by us—the horn of a deer, the trunk of a tree, the tusk of a boar, &c.—but, further, that in this object we have something told us about man's past ways and habits: the tree is formed into a canoe, the deer's horn into a pick or club, the stone into an axe or hammer. And there is also indicated, through the subdivisions, the particular number of kinds of article that each material was used for: bones being formed into needles, pins, knobs, combs, &c.; stones into hammers, axes, clubs; clay into pottery of various sorts; and so forth. So that, even in classifying Relics, there is a better and a worse method; and that method is best which sheds the greatest light upon the collection, which displays best the correlated properties among the objects, and which thereby furthers best the end or object that the science of archaeology sets before it.

The same rule is applicable to the grouping of the various Meanings of a word, where these meanings are numerous and of real significance. Let us take the philosophical term *Dialectic*, and see how the principle works. The significations here might be arranged in various ways, and each way has its own recommendations. We may follow the *chronological* order—*i.e.*, we may take up the great names in philosophy and set down the sense in which each used the term from early times down to the present day; or we may throw the meanings into logical groups apart from the chronological sequence. The chronological order would be the best if it were also the order of evolution,—*i.e.*, if each successive meaning were a distinct development of that which preceded it,—and if there were no overlapping in the significations. But, unfortunately, neither condition is complied with. There is no steady advance as the ages pass, but the usage of a later age, as one comes down the stream, frequently reverts to that of an age long prior, and more than one signification is current at a particular time. Thus, if we place the authorities in chronological sequence—Socrates, Plato, Aristotle, the Stoics, &c.; Cicero, Cassiodorus, Boëthius;

Isidorus, Alcuin, John Scotus Erigena, Petrus Hispanus, &c.; Hegel and certain moderns—what do we find? We find Aristotle assimilating himself to Socrates, and Hegel to Plato, and the Latins reproducing Aristotle or else running several significations alongside each other. We are, therefore, thrown upon the logical arrangement. This would probably gather up the meanings into three groups as follows:—(1) Those that express a mode or method of attaining truth, together with a mental discipline; (2) those that set forth the nature, the movement or the progress of truth itself; (3) those that designate a branch of science. Under the first head would come—(a) Socrates's cross-examination, or the clearing of people's notions by putting them through a series of interrogations, which, by first opening their eyes to their own ignorance, prepared the way for the discovery and reception of the truth (really, therefore, a species of Inductive Defining); (b) Aristotle's "dialectic," as described in the *Topica*,—confined to the sphere of Opinion or the probable, in contradistinction to Demonstration; (c) the "disputation" of the Schoolmen,—by means of question and reply, interrogation and response, examination of proof and counter-proof. To the second head would be assigned—(a) Plato's theory of Ideas, and (b) Hegel's movement of the Idea in the course of its expansion and development, in the threefold form of "affirmation, negation and the union of the two," "thesis, antithesis and synthesis," "identity, difference and combination". Under the third head would be placed—(a) the early Latin and Scholastic conception of Dialectic, which identified it with what we should now-a-days call Logic (although that term was formerly applied to Rhetoric as well, and was sometimes extended also to Grammar), and (b) that other Scholastic usage, which made Dialectic synonymous with "the pursuit of all the liberal arts".

Turn, next, to the Classification of the Sciences. If we go back to early times, we find the division current into Theoretical and Practical. This classification had certain obvious uses, and the convenience of it is attested by the fact that it is still in force, for general purposes, at the present day. But, obviously, it cannot plead the merit of being a strictly logical division; for many sciences are both theoretical and practical, and it would be equally legitimate to place them in the one division as in the other. Faulty, however, though it be in this respect, it is perfection itself as compared with the next great historical classification—that of the Stoics. The Stoics were above all things moralists, and everything they viewed from the ethical standpoint. They grouped the

Sciences, therefore, according to *dignity or worth* ; and, placing Ethics at the top, they descended from it, through Physics, to Logic. It is difficult to say whether the principle adopted or the limited number of the sciences recognised is the more naïve feature here ; neither does much credit to the remarkable sect that gained its philosophical reputation in the fields of Ethics and Logic, and neither had any general influence in the history of philosophy. The first notable attempt at a classification is in connexion with the Seven Liberal Arts. This, probably, dates far back ; but it comes into prominence for us with the Latins of the fifth and sixth centuries of our era,—more especially with the Roman philosopher and patrician Boëthius. Boëthius not only exhausts the circle of the sciences (in so far as recognised in his day), but consciously classes them upon the principle,—Begin with the primary and fundamental, and go on from that to the dependent and derived. We have not indeed from him a detailed handling of the whole of the sciences,—*trivium*¹ and *quadrivium* both ; but, in sketching the latter, he does so in the determinate order—Arithmetic, Geometry, Music and Astronomy,—and supplies us with his reasons. Some of his reasons are curious enough, and smack of Plato and Pythagoras ; but others of them are far more than mere historical curiosities. Thus, he says that, of the four mathematical sciences, Arithmetic comes first, because the destruction of what is prior in nature means the destruction of what is posterior, whereas the posterior may perish without the prior being affected. “Take away numbers, and whence do you get the triangle and the square and the other figures of geometry—seeing they are all denominative of numbers ? But take away the triangle and the square, and indeed the whole of geometry, and three and four and the names of the other numbers will not disappear. . . . In like manner, musical modulation is denoted by names of numbers.” So too with Astronomy : geometry, music and arithmetic are all presupposed here. Moreover, “Motion is subsequent to rest, and rest is the prior in nature. But astronomy is the science of the movable and geometry of the immovable, and the very motion of the stars obeys the laws of harmony.”

Now, vast as has been the extension of the circle of the sciences in modern times, and great though the difficulty be in establishing the precise character and place of each, it is something noteworthy that the main principle on which the

¹ This word is not Boëthius's, but appears to be a barbarous coinage of the seventh century.

leading classifications of the present day are founded is precisely that which guided the veteran statesman and philosopher in the days of Theodoric the Goth. They amply recognise the necessity of commencing with the fundamental and the simple, and of leading onwards, by successive steps, to the dependent and the derived. In carrying out this notion, they present us first of all with the abstract and next with the concrete sciences; and, in enumerating the branches of each great division, they endeavour to pay due regard to the mutual dependence of the included members. That which is self-sustained or independent comes first; next comes that which presupposes the principles of this non-dependent science; then that which requires for its elucidation the principles of both these; then that which implicates a knowledge of all the three; and so on. So that, among Abstract sciences, Mathematics is the primary,—relying upon none more fundamental than itself, but giving support, to a greater or less extent, to all the others; then comes Physics, then Chemistry, &c.; while, among the Concrete sciences, Mineralogy—as implying mathematics, physics and chemistry—precedes; Botany and Zoology follow—implicating vital and physiological facts; and so forth. It is all a matter of reasonable sequence: and by thus pursuing the order of dependence and of complexity the most luminous arrangement is obtained, and the grouping itself becomes highly philosophical.

But the great sphere for competing principles is the field of the Classificatory sciences. Both in Zoology and in Botany, where the details are something enormous, it would be strange indeed if only one system were light-giving. Several systems can claim consideration: and the great point is to ascertain which can best bring out the affinities and resemblances; and this is determined when we have found which classifies according to the greatest number of important characters.

This introduces us to the distinction between the Natural and the Artificial systems of classification,—a distinction, however, that is not peculiar to the Natural History sciences. It is in reality that which we have already drawn between a *rational* and an *arbitrary* or *frivolous* grouping. The peculiarity of the case lies here—that, from the character of the facts manipulated, that system which is known as Artificial is not in any strict sense of the word altogether arbitrary, but must be to a considerable extent also “natural”; while the system denominated Natural is also to a considerable extent “artificial”.

I do not indeed say that a system could not be formed, or has not been formed, to which the word *arbitrary* might not be strictly applied. On the contrary, when Theophrastus divided plants into trees and herbs, "referring the larger shrubs to the former, and undershrubs to the latter," he used a principle of division (namely, *size*) which cannot be designated as other than frivolous—notwithstanding that it long kept its ground, being accepted so late as the beginning of last century by Ray in our own country and Tournefort in France. And much the same may be said of Pliny the Elder's grouping of animals according to the *element* they lived in: those that fly in the air (*volatilia*), those that live on the land (*terrestria*), and those that swim in the water (*aquatilia*). But the Linnæan system (which is that commonly known as Artificial) differs from the Natural mainly in *degree*; and the accurate plan would be to drop the designations "natural" and "artificial," and to replace them by the terms "more natural" and "less natural".

What, then, is the distinction between the Natural and the Artificial so-called; and how can the former legitimately claim the pre-eminence? This question will be answered by referring to the objects that biological classing has in view. In the first place, it has all the objects of classification in general—*viz.*, helping the memory, aiding the understanding and displaying coexistences. But, in the next place, it has the peculiarity of dealing with *living* beings and of aiming at presenting these in the mutual relations that they actually bear in Nature. Now, in order to do this, it is not sufficient to rest content with mere superficial resemblances, but we must go deep down and fix upon those that are *significant* and *important*: and the test of importance and significance is, that they are *constant* and *prolific of correlated properties*. It is the main objection to the Artificial system that it fails in this respect, or fails to a far greater extent than the Natural system does. It is too ready to proceed upon the more obvious and easily ascertainable points of animals and plants, and it does not make the fact of correlated properties a prime consideration. Notwithstanding its one great recommendation—*viz.*, that it facilitates identification—it is deficient in the very points that are most imperative; and its leading principle of arrangement—*e.g.*, in Botany, the number of stamens and pistils—lands us in *natural* groups only, as it were, by accident and very occasionally.

Let us take as an example the classifying of Animals. In the Linnæan system, the classifying organ that determined

the highest divisions was the *heart*. Linnæus, accordingly, grouped thus:—

Heart, 2 ventricles, 2 auricles ;	{ Living young, I. Mammalia.
blood—warm, red.	{ Eggs, II. Aves (Birds).
Heart, 1 vent., 1 aur. ;	{ With lungs, III. Amphibia.
blood—cold, red.	{ With gills, IV. Pisces (Fishes).
Heart, 1 vent., 0 aur. ;	{ With antennæ, V. Insecta.
blood—cold, white.	{ With tentacles, VI. Vermes (Worms).

Now, as is well known, the heart is a very variable organ, and so is not well suited to give the great differentiating mark in the animal kingdom. It does not make the most of correlated properties, and it necessitates a great overlapping of classes. Later naturalists have, therefore, discarded it, and have given the place of honour to *the nervous system*. In this way they have been able to mark affinities and to display gradations to a far greater extent than ever Linnæus could, and to bring their classification nearer to what they conceive to be the ideal *natural system*,—although there is yet much to be done before perfection is attained. By fixing on the nervous system as their chief classifying organ, they have fixed upon something that is of the highest scientific value. For what determines the value of an organ for classifying purposes? The number of properties that it carries along with it. Presence of a nervous system, therefore, means many things. It means, in the vertebrates, possession of a brain and spinal cord, shut out in a special cavity from the general visceral tube of the body, and situated opposite the side on which the limbs are placed. It means possession of an internal skeleton, as opposed to the exoskeleton of such invertebrates as the lobster and the crab. It means possession of limbs jointed to the body, and always turned away from the nervous masses; and these limbs never more than two pairs. It means possession of a heart (except in the case of the lancelet), as well as of a blood-vascular system, and blood (with one exception) of a red colour; together with the peculiarity that the masticatory organs are “modifications of parts of the walls of the head, and are never modified limbs or hard structures developed in the mucous membrane of the digestive tube as they are in the invertebrates”. It means, lastly, increase in intelligence, advance in mental endowment, the degree of advance depending on the size and weight of the brain, but still more on the brain’s texture and convolutions. So that the Natural system has this great advantage over the Artificial that it is truer to the principles of natural science and of scientific classification in general; it is more fortunate in

facilitating the grouping of members according to their greatest number of real affinities and of fixed resemblances.

III.

But now a difficulty arises with respect to Biological grouping, yet not by any means confined to it,—a difficulty real and very perplexing wherever we have a complicated classification to deal with, and whatever be the materials in hand or the sphere of operation. No member of a complex system can have *all* its relations expressed by being placed in any one position in a linear scheme, however carefully located. While you may succeed in showing its connexion with those immediately above it and those immediately below it and (where you have a graded system involving co-ordinations) with those immediately around it,—you cannot exhibit its many resemblances to distant and seemingly unconnected groups, or exhaust its points of affinity or dependence. Hence the necessity of frequent re-grouping of a subordinate kind, with a special view to helping out the general classification and remedying its defects.

Let us revert for illustration to the classification of the Sciences, and let us pick out one science for the special purpose of exhibiting its various kinds of relationship. Ethics will suit our purpose admirably,—its bearings and connexions being manifold and the instance typical.

As Ethics is the science of human Character in reference to an ideal standard, it is properly enough regarded as a branch of the Mental sciences. But the mental sciences are numerous—psychology, sociology, metaphysics, &c.; and they stand to Ethics in all sorts of relations—causation, dependence, implication, &c. These relations must be clearly understood and schematically expressed.

Take, first, Ethics and Psychology. Now, as Ethics has to do in great part with character, and as character is a combination of certain volitional, emotive and intellectual elements, Ethics, in this point of view, must be regarded as a branch of psychology. The *methods* of the one science are the methods of the other also—they are introspection and objective observation; and Morality is a department of man's nature needing to be inductively studied, like all similar departments. But, further still, psychological *doctrines* find, many of them, their application in Ethics, and their meaning is only made all the clearer by their being presented in an ethical setting. Thus, the leading *laws* of psychology—those that give to it its distinctive feature and constitute indeed its scientific value—are those relating to

the Association of Ideas : Similarity and Contiguity play the most conspicuous part in the explanation of intellectual and emotive phenomena. But these are the laws also that dominate moral phenomena and afford us the explanation of Character. They here go under the name of Habit ; and this change of name sometimes imposes upon us, and makes us believe that in changing the name we have effected a change in the guiding principles. But change of principles there is none ; and Habit just means the operation of psychological laws directed on ethical or moral data. There is a change of *matter* or *content* indeed ; but similarity and contiguity hold their sway here as elsewhere, and moral habits are built up after the same manner as we make our intellectual and other acquisitions. So, too, the ethical laws of Transference, of Distance in time, and of Sympathy are really applications of the psychological. By the law of Transference is meant the tendency to associate pleasures and pains with their adjuncts or their causes,—as when the miser hugs his money-bags, or the rescued sailor cherishes the log that saved his life, or when the invalid contracts a dislike to the physician that cured him by some drastic process. The law of Distance is, that the nearer a pleasure or pain, the greater its influence over us ; the further removed, the less its motive power. We all know that “hope deferred maketh the heart sick,” and an impending evil is prone to paralyse us. By the law of Sympathy is signified the tendency to realise the feelings and conditions of others, and to make them our own. This includes fellow-feeling with the pleasures as well as with the pains of others (the latter being Pity or Compassion), and extends to the lower animals as well as to our fellow-men. We have here an obvious connexion with the Fixed Idea.

So with many other ethical facts that might be instanced—for example, Conscience. But enough has now been adduced to show that Ethics presupposes psychology,—is dependent on psychological laws and psychological methods.

There is also a dependence of Ethics on Sociology. This, of course, arises from the circumstance that man is essentially a social being, and that his *moral* nature would have no meaning apart from his relations to his fellow-men. Indeed, we might go even the length of saying that, apart from social intercourse, Conscience could not be. For, were man a solitary individual, with no knowledge of and no connexion with others, it is not conceivable how duty, right and wrong, and other ethical notions could emerge. But place him in the midst of other sentient beings, more especially

place him in the midst of other men, and these conceptions immediately emerge : and not only do they emerge, but they are strengthened and developed. A man acts on his social surroundings and his social surroundings act upon him, and through this mutual action and reaction of subject and environment the moral nature has come to be what it is. It was the fault of the older moralists that they viewed man too much as an isolated individual, and it is perhaps the fault of the moderns that they are disposed to ignore his individuality ; but self and sociality must both be taken into account, and you cannot, without disastrous ethical consequences, separate the man from his environment.

Next come Ethics and Jurisprudence. The relation here is obviously very close ; for Jurisprudence has to deal with rights and positive law—law as embodied in national arrangements or as relating to general society. It, therefore, meets ethics on its *social* side ; and many juridical conceptions are transported into ethical science,—such as Law, Sanction, &c. Ethics, however, reacts on Jurisprudence, and elevates its conception of Justice *as it is* by keeping before the minds of jurists the conception of Justice *as it ought to be*. Legal right and ethical right are not always identical ; but the tendency, as civilisation advances, is to make them so.

Take, next, Ethics and Ontology : regarding which, it may at once be said that the connexion here is not quite of the same kind as we have seen it to be in the other cases. There it was a relation of *dependence*,—the methods, laws and principles of Psychology, for instance, were seen as carried over into Ethics. Not so here. The metaphysical or ontological data of Ethics, if they are recognised at all, must be recognised as *implications* ; something that is found, *upon analysis* of ethical phenomena, to be presupposed,—fundamental, not as being first in the order of time, but as being involved in the revelations of the moral consciousness. These metaphysical data are usually put down (after Kant) as three in number :—(1) The Freedom of the Will, (2) the Immortality of the Soul, (3) the Existence of God. Concerning which, all that need here be said is that the second occupies an entirely different position from the other two. For, if the first be implied in the notion of Obligation (“*ought* implies *can*”) and the third be involved in the Authority or Supremacy of Conscience, the other is a datum only at the second remove. All that Conscience at the most testifies is, that virtue *ought* to be rewarded and vice punished. We have to look to our experience of the world around us and see that virtue is fre-

quently *not* rewarded and vice is frequently unpunished here, before we can reach the conclusion that there is a hereafter for us, when wrongs shall be righted and justice shall be done.

What now of Ethics and Religion? Obviously, if the metaphysical implications above enumerated be accepted, Ethics must be regarded as the foundation of Religion, rather than Religion as the foundation of Ethics. Moral conceptions are prior, *in order of thought*, to religious conceptions; and without the first the second could not be understood. We may quite well draw out an ethical system without any reference to religion; but we cannot draw out a religious system without distinct reference to, without presupposing or embodying, ethical notions. Not only are men's ideas of the Deity and of His righteousness relative to the moral consciousness (hence the diversity in theistic beliefs among people of different ages and of different countries), but the very possibility of the Deity's holding intercourse with man at all is the moral consciousness. For, suppose a Divine revelation made: how is it to be known by us? how can its truth be tested? Clearly, by its *moral* bearings, or else not at all. To urge its acceptance, in the first instance, on the plea that it comes from the Deity, is a manifest *hysteron proteron*. We must reverse the method and judge whether it is likely to have come from the Deity by the kind of revelation that it is.

Again, both Political Economy and Education have a relation to Ethics.

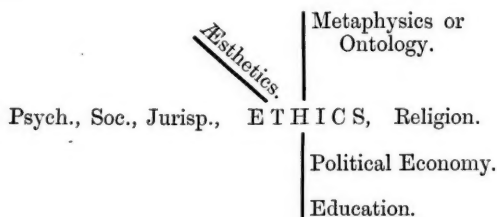
The leading principle of Political Economy is indeed the dominance in man of self-interest. It supposes that the unit of society is always a person disposed to buy in the cheapest market and to sell in the dearest. But although this is its leading principle, and that on which the science is founded, it cannot altogether ignore the fact that man has generous, self-sacrificing and benevolent impulses in him: and, in whatever extent it recognises this, to that extent it accepts the ethical position.

But the case is stronger for Education. There are considerable moral bearings here. It is the object of the teacher to form the pupil's character as well as to train his mind; and, for this purpose, he needs himself to know the power of the various moral motives, and needs to exercise great care in the application of them. Ethical considerations must also weigh with the writers and compilers of school-books. Lessons bearing on truthfulness, industry, manliness of character, chivalry, independence, and so forth, must be chosen; such as would encourage the corresponding vices,

or would tend in any way to lower the pupil's tone or debase his nature, must be rejected.

Lastly, Ethics has a certain relation to *Æsthetics* : by which I mean that there is such a thing as moral *beauty*. It would be quite wrong indeed to confound the Beautiful with the Good ; but there is, undoubtedly, a well-marked *æsthetic* aspect of morals, and this needs to be taken account of.

Now, if all these connexions between Ethics and the allied sciences exist, it is obvious that a bare *serial* classification cannot adequately represent them. By enumerating the kindred sciences in successive order thus—psychology, sociology, jurisprudence, Ethics, metaphysics, religion, political economy, education, *æsthetics*—you do not bring out the fact that Ethics is not dependent upon metaphysics (which comes immediately behind it in the enumeration) in at all the same way as it is on psychology, sociology and jurisprudence ; nor that the dependence of religion on ethics is of quite another stamp from that of political economy and education on ethics ; nor that the relation of ethics and *æsthetics* is quite different from both. Your single line is altogether inadequate and misleading. Clearly, a second line is needed intersecting the other, before we have clearness given to the expression ; and even this must be supplemented by other lines inserted at an angle. Thus, let the horizontal line in the accompanying diagram represent the



order of *dependence* proper, the vertical line that of *implication*, and the inclined line that of *indirect contribution*. Then, the sciences on the left side of ETHICS in the horizontal line (psychology, sociology, &c.) would be those that lead up to Ethics and on which Ethics is dependent ; that on the right side (religion) would be the science dependent upon Ethics : the upper part of the vertical line (where ontology is) would denote sciences whose truths are implicated in ethics ; the under part those (education, &c.) into which ethics enters : and the line or lines striking at an angle would serve to show

less significant relations joining on Ethics to more independent sciences,—aesthetics, for example. This, or some similar plan, is obviously required, if classification is to be that help to the understanding which it is capable of becoming.

But if this be so with respect to such a subject as the grouping of the sciences, much more is it so with Biological classification. The resemblances between groups both of animals and of plants are almost infinite, and no pains should be spared to bring out as many of them as is possible. The foundation of a *natural* group indeed is number and persistence of characters, and how can this be secured except by copious regrouping? How else can the mind be adequately helped in its effort to grasp the phenomena? Moreover, these regroupings, in order to be duly effective, must be accompanied by schematic devices,—chief of which is the Table. It is only by such means that the mind can be fully impressed with the unity that exists in the midst of variety throughout the world of animate beings; and only by such means can our view both of the whole and of the parts become clear and definite.

As, however, this is a subject that I have already handled in an article on "Botanical Classification" in *MIND* 20, I shall not here dwell upon it. Sufficient to have noted it, and to have called attention afresh to its character and importance.

IV.

A question, however, now presents itself. If it is the fact that complicated classifications need a system of grouping and regrouping, does not this tell against the logical character of the process altogether? No doubt, to some extent it does. For, it is an admission that the groups are not at all points and in every way mutually exclusive,—that, in a greater or a less degree, there is overlapping. But it is important to observe of what kind the overlapping is. Take the classification of the sciences, and it is seen that the process begins at its widest sweep with a pure dichotomous division: it is the contrast of the Abstract and the Concrete. Similarly, the kingdom of animals at its highest grade is divided into Vertebrates and Invertebrates; and the kingdom of plants into Flowering and Flowerless. So, the systematic arrangement of duties, in Ethics, proceeds upon the opposition of Egoistic and Altruistic; and any proper treatment of the Emotions must pay due regard to the dominant contrast of Disinterestedness and Malevolence. It is in filling

up the interval that the mutually-exclusive type cannot be consistently carried out. In so far as there is mutual implication among different groups, there cannot, to that extent, be mutual exclusion (the one idea cancels the other); and where, as in the case of living beings, of plants and animals, you have the phenomena of development and growth, of group shading into group by insensible degrees, rather than demarcated by a rigorous boundary,—cross-division is unavoidable. Hence the necessity of defining a *rational* principle of classification in the way that we have already done,—i.e., as *luminous*, in opposition to the arbitrary and frivolous, rather than as mutually-exclusive; and hence the meaning of the words “having regard to the materials manipulated and the end in view” appended to the Rule in Section II. above. In dealing with living beings, any principle that may be chosen always requires you to admit of *exceptions*; and the correlated properties that a fundamental character carries along with it are only true *on the whole*. Though the typical Vertebrate has all the points enumerated in last Section, there comes such an exception as the lancelet (*Amphioxus lanceolatus*), which has the unique peculiarities of anomalous breathing organs, and anomalous organs of digestion and of circulation; which, moreover, is destitute of a heart, and which has no true brain and no true skeleton,—no skull, no true back-bone or vertebral column: and its position is secured to it among vertebrates only because, taking everything into consideration, it shows more affinity to these than to the invertebrates. On the other hand, several of the invertebrates show a clear approach to the vertebrate type. In the so-called cuttlefish, for example, there is a distinct brain enclosed in a kind of skull—a gristly, not a bony, case. Still, because the affinities are towards the invertebrates, it is classed accordingly.

Mutual exclusion, then, is not an imperative requirement in graded classifications. Are these, therefore, to be considered illogical? If their object were a purely ideal one, this conclusion would indeed be inevitable. But as their object is not a purely ideal one, but aims first and chiefly at laying hold of things as they are in *fact*, this conclusion is illegitimate. In classifying the emotions, we must pay regard to their subtle interdependencies as well as to their diversities and contrasts; otherwise, it is not the emotions we classify, but something else. In schematising the sciences, we must never lose sight of the fact that these sciences have a kind of organic connexion, and that their union is of as much importance as their separation. In

arranging plants and animals in the vast graded system of the Natural History sciences, we aim as far as may be at reproducing Nature, and our divisions can hardly be more sharply cut than obtains in reality.

Nevertheless, it must never be forgotten that, in each and all of these cases, there is a *plan*; and the very fact of a plan implies a logical procedure. And, as the ruling trait is fixity and number of correlated properties, rigorous adherence to this principle will keep us as near to the requirements of logic as the materials admit of.

V.

A word, finally, may be due on the bearing of Evolution on Natural History Classification.

Many evolutionists affect to despise Classification, and, as far as one can judge, seem to regard it as inconsistent with, or actually opposed to, their pregnant theory. Nothing, surely, is more unwarranted. It may safely enough be asserted that, had it not been for the existence of a highly developed scheme of biological classing, Evolution would still have been a thing to search for. And with equal confidence may it be asserted that, the more thoroughly Evolution is worked and the further it progresses, the greater is the help it will render towards the perfecting, not the destruction, of the Natural system. What Evolution does is to throw new light upon biological facts; and, in throwing new light upon them, it is better fitted than anything else to bring out affinities and resemblances among living beings. Now, as it is on affinities and fixed resemblances that Natural classification reposes, much may be hoped, and nothing need be feared, from the advance of this great fruit-bearing conception.

V.—PHILOSOPHY AMONG THE JESUITS.

By FRANCIS WINTERTON.

IN the plan of the Order founded by Don Inigo de Loyola, philosophical instruction occupies only a secondary place; still it underwent developments and took directions, in the course of the Society's career, that are worth a close study. I will at present try only to sketch out rapidly the main stages of the history, from the constitution of the Order about 1540 till its dissolution in 1773.

What is the fundamental idea that underlies the whole of Jesuit philosophy? To answer this question, we must first of all ask the previous one: What is a Jesuit? A Jesuit may be defined as 'a Roman Catholic profoundly and practically convinced that all things in this world (science and philosophy of course included) are but means for him to work out the salvation of his soul'.¹ A Roman Catholic starts from the assumption, regarded by him as indubitably sure, that his Church is in possession of absolute truth, and is accordingly the very best means of salvation in the world. This once admitted, the greater the number of souls saved by any man, the surer that man is of his own salvation; and the more zealously he upholds the Catholic Church, the greater number of souls he is sure to save. It follows logically that every effort of the Jesuit ought to tend towards upholding his Church; that every possession, every talent, every affection, even life itself, ought to be consecrated to that end alone. Every force, every influence, every tendency in the world antagonistic to the Church, must be unswervingly resisted: the Church cannot *do* wrong. Any speculative doctrine, any philosophical system, any scientific hypothesis hostile to the Church, must be relentlessly opposed: the Church cannot *be* wrong.

St. Ignatius had nothing whatever of the speculative philosopher in his nature; he was, on the contrary, intensely and overwhelmingly practical. Those who paint him with the romantic colours of chivalry, and make of the first Jesuit a sort of Christian Don Quixote, only caricature one side of his many-sided character. His dreams, visions and ecstasies never interfered with his knowing what he wanted and

¹ See the *Exercitia Spiritualia; Principium et Fundamentum*.

how he was to attain his purpose in the outside world. If anyone takes the trouble to read his *Exercitia Spirituality* through, he will not be repaid by five lines of pure speculation, except perhaps in the *Contemplatio ad Amorem*, in the last 'Week'; and even that contemplation, as may easily be seen, works towards an end—towards the *one end* of the whole book. This allusion to the *Exercitia* is by no means irrelevant; we are at the very springhead of Jesuit philosophy. The book in question contains the whole idea of St. Ignatius, already worked out and matured in the solitary grotto of Manreza, at the very beginning of his conversion; and the whole subsequent life of this man, together with the whole history of his Order, is but the systematic evolution of the principles contained in this book. It is studied in silence and solitude, during one week every year, by each member of the Order. It is studied in the same absolute seclusion during the three probations: a week during the first, a month during the second, and a month again during the third. From its contents the subject of the daily hour of meditation of every Jesuit is selected. It is the theme of every retreat preached by a member of the Order; and it would be hard to find a single book, a single sermon, composed by a Jesuit, in which some idea taken from the *Exercitia* does not occur. Now in this book, after the first fundamental idea of salvation, from corollaries to corollaries, the author comes at last to the problem: By what means can the interests of the Church be best promoted intellectually? And the answer is given in the *Regulæ ad rectè sentiendum cum Ecclesia*. Not that, in raising this question, St. Ignatius means altogether to throw aside the free exercise of his reason. True, reason is for him a "means unto salvation," and nothing more; but, if *not* exercised freely, it is no longer reason. The Church, being true, needs no reasonings for itself, but only for its children; and the fewer they need, the more meritorious their faith is. "Blessed is he that hath not seen, and yet hath believed." Still, one must be practical, and it is a fact that the better and stronger the arguments given in favour of the Church, the more easy a task it is to believe. Therefore it only remains to look out the best arguments and the best system of philosophy whereby to defend the Church.

In the *Regulæ*, Loyola begins thus: "I must be ready to believe that what I see to be black is white, should the Church declare it to be so". This seems a rather astounding position for a man in his right senses to take up; and how any philosophy can be possible in such a state of mind is at

first sight hard to conceive. It would appear to destroy all the certitude of science, since we may suppose the Church stepping in at every moment, and denying the veracity of scientific experiments : ' This is not an explosion ; that is not a gas ; your analyses are not well made ; your syntheses have led you into error '. Reason itself is overthrown by faith, since faith is in the right when it contradicts reason. And lastly, even religion, left without the basis of rational thought, is utterly annihilated, and nothing is left but an abject superstition, whose formula is : I believe—because I believe. If we look a little closer, however, we shall see that things are not quite what they seem.

St. Ignatius does not take a contradiction of faith with reason as his example, but a contradiction of the senses *versus* faith. He does not say, for instance, that supposing $2 + 2 = 5$ were to be decided by a Council, he would have to believe it. Nor is this contradiction of the senses an absolute one. It would be so, if he said : You must believe that *what is black is white*, if the Church tells you it is ; or : You must believe that *what you see to be black you see to be white*, if the Church decrees it. He does not affirm either of these two contradictions, but only says that *what we see to be black may be white* ; that is, may not be in itself what it is subjectively as perceived. It may be objected that this is to go quite far enough. So it is ; and indeed I do not see how anyone can go farther without falling into a palpable absurdity. Let it also be remembered that, in the time of St. Ignatius, it must have seemed much more contrary to reason than it really is. We all know now that such a defect as colour-blindness not only may but really does exist, and that there are many instances of a man taking, *e.g.*, red for gray, which means that *what he sees to be gray is red*. But in the time of St. Ignatius this phenomenon was completely unknown, and the fact seems to render the boldness of his ' rule ' still less excusable. He ought not, however, to be condemned without our noticing one plea in favour of his doctrine—*viz.*, that it is thoroughly consistent and logical. No Catholic can, without contradicting his own principles, say one word against Loyola's manner of proceeding : he but formulates clearly and explicitly what every believer in the Romish Church implicitly submits to. His rule is to believe against the evidence of the senses and, whilst admitting their subjective, to deny their objective infallibility, when their testimony clashes with faith. All Catholics believe in one omnipresent God, present, not partially but in totality, in every

part of space ; yet their senses cry aloud that nothing can be undividedly present in several separate places. They believe that one unchangeable Person, the Word of God, was born, suffered and died ; yet their senses affirm that all such processes imply variation and change. They believe that the appearances of bread and of wine conceal the body and the blood of Jesus Christ ; and yet their senses warn them that what appears to be bread *is* bread, that what seems wine is wine in very deed. At every step there is a conflict between the ideas and judgments which the senses tend to produce, and the ideas and judgments that are evolved under the influence of faith. I here purposely abstain from passing judgment upon the principles from which St. Ignatius started ; I merely notice that he was consistent with himself and strictly logical all along.

The standpoint from which he views everything having thus been indicated, it will hardly appear surprising that he arrived at the conclusion that Scholastic Philosophy was to be made much of.¹ It is a well-known fact that no system of philosophy is so little at variance with the dogmas of the Church of Rome as the doctrine of Aristotle. Other systems of doctrine may perhaps be wrested into compliance with the mysteries of that faith : Peripateticism lent itself to the transformation. If anyone wishes to study the process, and observe with what ease this change was brought about, he has only to read St. Thomas Aquinas's commentaries on Aristotle ; on the completion of which the Sorbonne raised the prohibition it had so long laid upon the works of the Grecian philosopher. It may be that this facility of adaptation was solely due to the assimilative genius of Aquinas ; still I am much mistaken if the doctrine itself, as Aristotle gave it to the world, did not count for a great deal in the success of the operation.

But while St. Ignatius, in the rules he lays down, inclines visibly to the Scholastic Philosophy, he does not exclude the different manner of doctrine professed by most Fathers of the early Church, which he calls Positive Theology. This is by no means an inconsistency on his part ; still less is it a departure from his primal idea of upholding the Church, to which both the ancient Fathers and the Schoolmen of more recent date are equally necessary. But though he attributes to the former the important task of strengthening the heart and determining the will by their eloquence, he still gives the palm to the latter for whatever concerns

¹ See the *Exercitia : Regule ad rectè sentiendum*, &c., towards the end.

method and argument. They complete each other ; but it is as literature and the fine arts, in a course of education, complete and are completed by scientific pursuits.

If we now turn to the *Constitutions*, drawn up by St. Ignatius and his first companions, and presented to Paul III. for approbation, we shall find the same idea more strongly and distinctly expressed. "As for Logic, Natural Philosophy, Ethics and Metaphysics, the doctrine of Aristotle is to be followed." "Let the Scholastic doctrine of St. Thomas be taught. . . . But if, in the course of time, another author should seem preferable for our students ; for instance, should a *Summa* or book of Scholastic theology be published that should seem more appropriate to the present period, such a work might be used amongst us."¹

This is very decided and unequivocal. Yet it is, on the whole, a much more judicious and moderate decision than anyone could expect who puts himself in the place of St. Ignatius, both as to his internal convictions and as regards the times in which he lived. Until that period there had not been a single religious Order that had failed to inscribe Scholasticism on its banner. Both in Metaphysics and in Natural Philosophy Aristotle reigned supreme. Most of the Platonists of St. Ignatius's time were noted heretics, even infidels ; and Galileo, the Catholic adversary of Aristotle's physics, was not yet born. Catholic philosophers were divided into Thomists and Scotists ; while Protestants attacked Scholasticism in general, and Thomism in particular, with incredible vigour and fire. *Tolle Thomam*, cried the great voice of Luther, *et ego diruam Ecclesiam* ; which reminds us of Archimedes asking for a fulcrum, in order to move the world. At the Council of Trent the *Summa Theologica* of Thomas Aquinas was placed on the table by the side of the Holy Scriptures. When St. Thomas's canonisation was proceeding (1323) the Pope, John XXII., impatient at the formalities which hindered the Angelic Doctor from taking his place amongst the Saints, exclaimed : "What need have we of miracles to canonise him ? every sentence he has written is in itself a miracle". And if, after this unanimity both of friends and of foes to the Church, we find the author of the *Constitutions* only choosing St. Thomas until some better author and one more adapted to circumstances should arise, we may well be astonished at his moderation.

The causes of this extraordinary moderation are easy to

¹ *Constt.* 4a Pars. Cap. xiv. § 3 ; Cap. xix. § 1, note B.

guess. The new organisation of which he was the founder had to struggle between the rival forces of the Thomist Dominicans and the Scotist children of St. Francis. He could not possibly keep to his leading idea—the best means of defending the Church—and at the same time embrace the doctrines of Duns Scotus; whereas, if he showed that the Society was absolutely and unreservedly Thomist, it would have set the Franciscans bitterly against him, and hardly conciliated the Dominicans, unless by a display of obsequious subserviency fatal to the independence necessary to any Order. Besides, he had in the example of the two Orders just mentioned a fatal instance of the results attained by party spirit in speculative things. I shall touch upon this again further on, but now merely point out that no enemies of Scholasticism could have done it more harm than its adherents did by their wranglings. Again, if we may attribute any personal feelings to a man so utterly absorbed in the realisation of his plans, St. Ignatius could not have easily forgotten that he had everywhere met with opposition from the Dominicans, who had twice thrust him into prison, for preaching before he was ordained a priest. Shall we add to these causes a vague and perhaps unconscious hope that some day there would arise a member of the nascent Society, whose writings might be deemed worthy to take the place of Aquinas, at least in the schools of the future Order? It may be; but that hope, if ever it existed, was doomed to disappointment. No one author among the Jesuits has the honour of being openly commented in its schools as an authority.

We may now pass to consider the first movements of the Jesuits in the philosophical line, and sum them up as a mere reaction against Protestantism. At the outset of the Reformation, one great question was raised, which is not yet set at rest. The problem of free-will finds Protestants far from unanimous at the present day; but at the beginning it was otherwise. Luther and Calvin, the two main pillars of the Reformation, had written the *De Servo Arbitrio*, and the *Institutio Christianæ Religionis*, each embodying their doctrine on this point. Everywhere Jesuit missionaries were engaged in fierce conflict with the Reformers, and everywhere they were met, if not with the absolute negation of free-will, at least with the negation of that amount of it which is necessary for the dogmas of their Church. This fact may perhaps throw additional light on the reserve with which St. Thomas is spoken of in the *Constitutions*, and the innuendo that he is not sufficiently “actual”. The *Summa*

contra Gentiles and the *Summa Theologica* only reflect the light of past controversies; and among them that of Pelagius is one of the most famous. The Church, as everyone knows, had considered the British monk's idea of free-will to be exaggerated; accordingly all works of mediæval theology tended to abase nature, and to exalt the work of grace in man.¹ And when Protestantism came upon the field, crying down free-will as much as Pelagius had cried it up, some propositions of St. Thomas did certainly seem not adapted to circumstances. For instance, to quote only from his *Summa contra Gentiles*, the proposition "Quod motus voluntatis causatur a Deo, et non solum potentia voluntatis" (lib. iii. cap. lxxxix.), and the affirmation (lib. iii. cap. clxiii.) that "necesse est prædictam hominum distinctionem (the elect and the reprobate) a Deo esse ordinatam" must have appeared to Jesuits as both ill-timed and ill-worded without some explanation. Hindered by the decisions of the Church from going openly so far as Pelagianism or as Semi-Pelagianism, it was but natural that they should approach as near to these forms of thought as possible, in order more surely to avoid and more powerfully to resist the opposite tendency, which was more dangerous then. And so long as they confined themselves to struggling with Calvinists and Lutherans, who were outside the Church; so long as they only grappled with Baius and his followers, who, though in the Church, were the rebellious expounders of a system it had condemned,—all went well. But when the most celebrated religious Order in Christendom took up, partially at least, the opinions of Baius, and the Dominican Bannez brought forward the doctrine of 'physical premotion' as part and parcel of the system of St. Thomas, then the Society of Jesus found itself in a serious difficulty.

The Dominicans had comparatively little to do with Protestants, and considered all questions from a widely different point of view. The Jesuits asked, on examining any question whatever: Which side is it most expedient to defend in the interests of the Church? The Dominicans inquired what answer St. Thomas had given, or would have given; what opinion is pointed to by the consequences of his theories, or the language used by him. And so it happened that both Orders were right, from their own points of view.

¹ Not only works of theology, but of piety too. The *Imitation of Christ* contains chapters (on the different motions of nature and grace, and on the corruption of nature and the efficacy of divine grace : iii. 54, 55) that would hardly have been allowed later on.

St. Thomas repeatedly employs expressions that can without difficulty be interpreted in the sense of 'physical premotion'; and there is no doubt that the further a Catholic keeps from any popular heresy, the safer it is for him, so long as he does not fall into the contrary error. The question remains, of course, whether the Jesuits really did avoid Pelagianism; but they certainly were convinced that they did. A practical problem had arisen, from the moment when Bannez' theory saw the light. How could they possibly resist Protestantism with success, if they admitted as true, or even possible, a doctrine separated from Lutheranism and Calvinism only by the finest-drawn distinctions, which many were inclined to say were no distinctions at all? And when, after the Jesuit Father Monte-major's attack upon Bannez, they found the latter expressly approved by the Dominican Order, they could not help protesting *en masse*, in order to keep their hands free.

Two courses now lay open before them. One was to confine themselves strictly to an onslaught upon 'physical premotion,' without attempting to bring forward a view of their own: in a word, to attack what was dangerous without endeavouring to solve what was insoluble. The other was to bring forward a rival theory; and the latter course, as we know, was taken. This seems to me a slight deviation from the ruling idea of St. Ignatius. Louis Molina was a man whose genius at least equalled that of Bannez; and his theory '*de scientiâ mediâ*' is worthy of the best times of Scholastic theology. The Society, I am afraid, was not able to resist this splendid opportunity of 'showing off'; and perhaps jealousy of the Dominicans counted for something too. Still, 'showing off' and the humiliation of a rival Order have nothing in common with the defence of the Church. I know very well that they had the right to do as they did; what I contest is not the right, but the expediency of their decision. And what were the results of this one false move? Years of interminable discussion; the reputation of being Semi-Pelagians; the danger of a public condemnation as heretics; an incalculable amount of labour that might have been more fruitfully employed; the death even of two of their number, FF. Valentia and Arrubal, struck down in the ardour of debate; and, as some say, the death of Pope Clement VIII., caused by his solicitude and fatigues in these disputes. All this to what end, either as regards the Church or the Jesuits themselves? They avoided being branded as heretics, it is true, and that was a triumph, if we remember the immense influence their

adversaries then enjoyed at the Papal Court; but the doctrine which they considered to be so dangerous to the Church also escaped condemnation, merely because they gave way for a moment to a very natural desire of glory. Had they been satisfied with taking the offensive, 'physical premotion' might not have been anathematised; but, given the position in which the Romish Church then stood, it would certainly have been forbidden as dangerous. Instead of which, the Jesuits got nothing but a great deal of trouble.

The trouble brought upon them was in fact so great that they stood in great jeopardy of losing their reputation of purity in the faith, which, to an Order that could hardly count fifty years of existence and had already made almost as many enemies as there were monks in the whole world, was of supreme importance. To parry this blow, the fifth General Congregation published the following decrees, in 1594, a few years before the Order was called to account by Clement VIII., and whilst the quarrel was raging the most fiercely between Thomists and Molinists, each treating the other party as Calvinists or Pelagians. The italics are of course wanting in the original.

"The Committee appointed to examine the doctrines and methods of our schools, having carefully discussed and fully debated the question, and laid before the Congregation their conclusions as to what concerns the speculative part and choice of opinions, the Congregation has approved their sentence. And firstly, it has unanimously declared that *the theological and scholastic doctrine of St. Thomas*, being more weighty, safer, more approved and better agreeing with our constitutions than any other, *is to be followed by our Professors.*

"Let our teachers follow *St. Thomas*, as to Scholastic Theology; and in future let those alone be promoted to the chairs of Divinity who are well affected towards the same. As for such as are unfriendly, or *even indifferent to him*, let them not be allowed to teach. But, for the conception of the B. V. Mary" [about which St. Thomas is known to have held opinions that are now heterodox], "and as to the question of solemn vows" [which most especially interested the Society], "let them follow *the opinion that is most commonly received and followed by theologians at present.*

"Should the opinion of St. Thomas be doubtful, or *should Catholic doctors not agree upon questions which St. Thomas has not treated*, our Professors are free to choose whichever side they prefer.

"In matters of any considerable importance, our Professors must not depart from Aristotle's doctrine, unless when the latter holds an opinion not generally admitted at present, and still more when he contradicts the true faith.

"They must never speak of St. Thomas otherwise than with reverence, following him with ready minds whenever they can, and when they cannot, separating from him with due respect and as against their will.

"They must introduce no new questions, nor any opinion that is not held by some author of note, without having consulted their Superiors; nor should they defend any proposition repugnant to the axioms of philosophers and the common sentiment of the Schools. And let them know

that, should any of them be *too much given to novelties or of too independent a way of thinking*, they shall certainly be deprived of their professorial functions.

"They must not, however, be so much attached to St. Thomas as to set him aside in no question whatever. Even those who profess to be thorough Thomists, do not follow his teaching in all things : and it is not just that the members of our Society should be more tightly bound to St. Thomas than the Thomists are themselves.

"In questions that are merely philosophical it will be also allowed to follow other writers, that have treated more specially of those subjects."¹

This decree may well be called a master-stroke of policy. Clement VIII., though friendly to the Jesuits from other points of view, and notably as to their return to France, whence they had been banished under Henry IV., is well known to have leaned towards the opinions of the Dominicans ; and being a pure Thomist on all other points, he seemed much inclined to put the Jesuits in the wrong in the question of predetermination. It is easy to guess how much this decree must have tended to pacify him, and even to make him doubt who was really in the right, since the Jesuits professed to be no less attached to St. Thomas than the Dominicans. At least, if they did not say so, they let it be supposed, by the stress they laid upon the injustice of having to be *more* Thomist than the very Thomists. There is also a covert allusion to the question in dispute at that time : the decree mentions the case of St. Thomas's opinions being doubtful, or his not having treated the matter ; for the question raised by the early Reformers was such that the few words written by Aquinas on the subject of predestination, &c., are utterly insufficient, ambiguous by their very brevity, and of very little use in the controversy that was then going forward. Nothing is more reasonable than the decree of the Congregation ; nothing better calculated to allay the fears of heresy, that had sprung up in many minds. The Jesuits indeed demanded a certain independence ; but what independence ? They decide not to follow Aristotle without reservation. They resolve not to be more ardent disciples of St. Thomas than his most zealous followers. They are ready to expel any professor who is *too* independent, *too* fond of novelties, *too* little penetrated with respect for the holy Doctor ; and the particle *too* seems clear enough to all who use it. If they wish to be allowed to separate from his guidance on some points, they only specify two ; and in these they only elect to follow the general sentiment of the Schools. Pope Clement VIII. must have

¹5 Congr. Gen. Decr. xli. ; lvi. § 2.

been edified, when he read those decrees, to see what the real feelings of the Society were. But perhaps he did not know what the Jesuits were perfectly well aware of: every rule, every decree, has to be interpreted according to the meaning of those who draw it up. The following anecdote, which is perfectly authentic, may give an idea of what interpretations can be given to the strictest rules; and it is an axiom in the Society that rules are to be interpreted according to custom and precedent, unless a new decree supervenes to define their signification more exactly.

A novice was in France some years ago, at the time when the Comte de Chambord and Don Carlos were much talked about. He had heard the rule, read every month in the refectory, to the effect that no one was to speak about the wars and quarrels between Christian kings and princes. Now all the novices were busied during the time of recreation with the hopes of Henry V., the white flag, the blockade of Bilbao, and so forth, talking of all these subjects without the slightest pangs of conscience on account of the rule. Nay, more, when the Master of the novices came amongst them, he used to set the example of such discourse, with so much enthusiasm for the Royal cause, and so much apparent forgetfulness of the rule, that the young man took the earliest opportunity of asking for an explanation. It then appeared that the rule was only intended to suppress opposite national feelings; but that when anti-religious Republicans stood on one side and Christian Monarchists on the other, politics, forbidden when they have only a strictly temporal object, become allowed as soon as spiritual interests are concerned.

I have related this merely as an instance of legitimate interpretation, which sometimes may lead to unexpected results; and indeed it was no difficult task for the Jesuits, without any far-fetched interpretation, and keeping strictly to the letter of the decree, to do pretty much as they liked with St. Thomas. One thing alone was clearly understood: that they were to respect him very much, and not to set his opinions aside without reason. But as for adopting his opinions without reason, that was another extremity from which they were guaranteed by the very letter of the decree. Between slavish reverence and disrespectful freedom there is a great distance, and one may find between the two a very considerable borderland of independent reverence and freedom blended with respect. On this borderland the Jesuits very cleverly pitched their tents, and took up a strong position. Their position is well illustrated by the works of Suarez, the

most celebrated of Jesuit metaphysicians, who created, so to speak, a School in the School. Scholasticism stands midway between pure Empiricism and absolute Idealism; it is the 'Empire of the Middle'. But Scholasticism itself being divided into the antagonistic schools of Aquinas and of Duns Scotus, Suarez set up a 'half-way house' between the two. And if the maxim 'In medio veritas' be allowed, then Suarez was the most likely of all to get at truth. It is curious to see how respectfully independent he is of the 'Angel of the School,' and how often he follows the leading of the 'Doctor Subtilis,' whilst apparently treating him as of slight account. On the minor philosophical questions he is almost always more or less at variance with St. Thomas. Aquinas, for instance, affirms that essence and existence are really different; Suarez denies it. Aquinas asserts that the soul gives the human body not only humanity, but corporeity; Suarez contradicts him. Aquinas thinks that to a complete non-universal human being, 'something' must be added in order for it to become a person; Suarez thinks the addition quite unnecessary. Aquinas is of opinion that perfect happiness, or beatitude, is an act of the intelligence—contemplation; Suarez makes it consist in an act of the will—love. All these points, together with many others, too numerous to be mentioned here, are matter for divergence; and as for finding fault with the proofs given by St. Thomas, Suarez is absolutely relentless. He might almost be called captious, were it not true that proofs, in order to be proofs, must resist the sharpest fire of adverse criticism. Still, if he agrees with Scotus on most of the minor points, he is with his adversary on most of the major ones; particularly in the great problem "whether Ens is a generic term, or a name given to different objects by analogy only"; and he altogether repudiates the celebrated Scotistic "formal distinction a naturâ rei"—half real, half logical—both and neither.

Such was the liberty which distinguished the Order of Loyola from that of St. Dominic. Here a few words are needed to mark out more distinctly the different spirits that pervaded these two famous bodies of men; and it may not be amiss to state briefly in what manner the latter society fixed its opinions at once and for ever. Numerous adversaries of St. Thomas had arisen after his death, which took place in 1274. In 1276, the Universities of Paris and of Oxford had condemned four of his theses as contrary to faith; and many Dominicans, in England especially, had publicly opposed some of his doctrines. The heads of the

Order, indignant that such an outrage should have been inflicted on the memory of the Angelic Doctor, hastened to take defensive measures. In 1278, a general Chapter, assembled at Milan, sent to England Raymund Meullon and John Vigorosi, with orders to punish and revoke from their functions such of the Superiors and Professors as attempted to dishonour the memory of Brother Thomas. And in 1286, a second general Chapter commanded every member of the Order to defend faithfully the teaching of St. Thomas, under pain of deposition from his charge. The whole Order obeyed the sentence to the letter; and from this time, the doctrine of St. Thomas became to the very smallest detail, the doctrine of the Order: the Dominicans became Thomists. The Franciscans were not slow to imitate their example: Scotus, chosen as their great leader, contradicted Aquinas on every point on which he possibly could; and the Franciscans became Scotists. Both parties disputed and wrangled together for two hundred years; and as they wrangled, philosophy gradually went down; it was no longer a search after truth; it was the eager competition of two rival establishments. At last Protestantism arose, and Scholasticism was shattered; Descartes and Locke wrote, and Scholasticism was destroyed. One first cause of the ruin that came upon the most durable edifice of human thought was this want of respect for individual liberty shown by the Dominicans in 1286.

The Jesuits proceeded otherwise, and certainly with more tact and better knowledge of human nature than their adversaries. The very fact of their being a body of which each member was responsible for every other, obliged them to lay a heavy hand of restraint upon individual thought; but this restraint was rendered as light as possible, considering the necessity of discipline. It was not the ponderous unity of the Macedonian phalanx; it rather resembled the agile strength of the Roman legion. The Jesuits had *no special doctrine of their own*. It has been said that Molinism was the doctrine of the Society. This is very far from exact. Many Jesuit writers of note differ from Molina in almost all, save the one essential point of making the human will "a faculty that, even when all conditions of activity are present, is free either to act as it chooses or not to act at all". But this thesis is nothing more than the mere denial of 'physical premotion'. So, even on this point, the Society has no particular doctrine. All it does is to forbid certain doctrines to be upheld for the time being, not as false, but as ill-timed and inconvenient. This explains how, for instance,

there was a time when no Professor who admitted the existence of atoms would have been permitted to retain his chair; and now, without any change in the written laws of the Society, Professors every day teach that atoms exist, because the inconvenience that once was felt is felt no longer, and the prohibitory clauses have little by little been allowed to fall into desuetude.

That no doctrine was ever specially imposed by the Society may seem a strange assertion to readers of *MIND* who recollect that not long ago (July, 1886) there appeared in the pages of this Review a notice written by one who appears to be well informed, about the order of Father Beckx, inspired by Pope Leo XIII., to teach the real distinction of matter and force (or form). But this is only an exception, and the circumstances under which it took place were exceptional too. As for the liberty left in the Society to all doctrines by which the Church did not seem endangered, it is sufficient to notice the decree of the thirteenth General Congregation, that runs as follows:—

“It has been reported to the Congregation that some are persuaded that the Society has taken on itself expressly to defend the opinion of those doctors who hold that it is allowable to follow the less probable opinion of two, which favours liberty of action, and set aside the more probable one, according to which one is morally obliged to act. The Congregation has thought fit to declare that the Society has neither forbidden nor forbids the contrary opinion to be defended by all those who think it more likely to be true.”¹

Here we find the very Society that has so often defended Probabilism, and had so many awkward thrusts to parry on its account,—so much so, that the Jesuits are perhaps better known as Probabilists than as followers of Molina,—declaring that any of its members are perfectly free to defend the contrary opinion! This is, I think, a strong enough proof of my assertion that the general rule of the Order was only to exercise a negative and temporary supervision over the doctrines taught by its Professors. Father Acquaviva indeed² tried to impose on the Society the doctrine of Suarez in the question of Grace and Free-will, midway between Molina and the Thomists. But here he did not succeed, and was not approved by the following General Congregation. Many details too, of Molina’s system, have been rejected by the majority of Jesuit philosophers. Molina

¹ 13 Congr. Gen. Decr. xviii., 1687.

² So I was told by a Jesuit of some note, but I have not been able to find any trace of the fact in the decrees of the General Congregations.

said, for instance, that God saw the future possible acts of man through His 'supercomprehension' of human nature. Given a being of a certain intelligence, he will be right x times in his guesses as to what a given man will do in given circumstances. If his intelligence is twice, thrice, four times as great, he will be right $2x$, $3x$, $4x$ times in his guesses. And if his intelligence $= \infty$, then $x = \infty$ also, which means that God will be always right. The majority of Jesuits, however, maintain that God knows the future possible acts of man 'in themselves and without any medium,' which is clearly no answer at all to the question. But to return : in all questions, the Professors of the Society knew the general direction that was considered safe, and were coerced only when they went too far to the right hand or to the left. If Molinism, therefore, understood in general as a system of Indeterminism, became the doctrine of the Society, it was because the majority declared in its favour, and the Generals, in consequence of this verdict of public opinion, gradually eliminated from the professorial sphere those who were opposed to it.

A remark which is not essential, but which serves to show what curious inconsistencies we sometimes meet with both amongst individuals and public bodies, is that, at the very time when the Jesuits stood up the most strenuously for the doctrine of Free-will, they were (not without reason as to some members of the Order) accused of laxity in their system of Ethics. It would have seemed more natural for them to have been accused of exaggerated severity, since they maintained so completely the responsibility of man. But the latter accusation was never made against any Jesuit, so far as I am aware. If a Jansenist or a Thomist fell into sin, he might have said, with some appearance of a reasonable excuse : "I have not received efficacious grace"; or "I have not been physically premotioned to resist sin". And whether such excuses have any value or none according to these systems, is no matter at all; it would seem that excessive laxity *ought* to be found on their side, if found anywhere. And yet they were by far the severest moralists. Perhaps the Jesuits, too confident in the speculative worth of their principles, did not think enough of reducing them to practice; or it may be that their opponents, instinctively feeling their weakness on that point, strove to hide it as much as possible by extreme and inconsistent rigidity in their ethical theories.

The 17th century dawned in the midst of these controversies, which, ending in nothing, only tended to bring

Scholasticism into greater and greater disrepute. There was a vague feeling of its inefficiency in men's minds; and this feeling did not altogether spring from the fact that the number of talented expounders of its doctrine was small; for, not to speak of any writers but those of the Society of Jesus, Suarez, Cardinals Bellarmine and Tolet, Sylvester Maurus and Molina would have done credit to any century whatever. At about that time René Descartes, a pupil of the Jesuits, set to work to renew the whole philosophical edifice, and, by the lucidity and interesting simplicity of his style, the thoroughness of his method and the seemingly mathematical rigour of his demonstrations, attained the results known to every philosophical student or amateur. Locke, coming after Descartes, showed himself as independent of Peripateticism as he; but his influence was not powerful till later on, and merged into the general current created by Descartes. Descartes, on account of the predominance of the French language throughout Europe, of the imaginative power of his own genius, and of the moderation with which he refrained from attacking any of the dogmas of the Roman Catholic Church, saw his ideas spread rapidly and make numerous partisans. He besides maintained a firm friendship with the teachers of his youth. Many letters written by him to different members of the Society of Jesus on philosophical subjects testify how desirous he was to find auxiliaries in them. He even wished his system, sprung from the brain of one of their pupils, to be what Thomism had been to the Dominicans, or Scotism to the Order of St. Francis, and hoped that Cartesian and Jesuit might be two words signifying the same thing. During his life, the Society neither disappointed nor flattered this hope. Such a change was not possible immediately; so complete a rupture with all their old traditions and the universal sentiment of all preceding and contemporary Church philosophers, could not be dreamed of on a sudden, and, if to be thought of at all, would only be the outcome of a gradual, almost insensible development of ideas. So long as Descartes lived, the Society contented itself with taking his system into serious consideration; and Descartes, convinced of the value of his system, was satisfied with this attitude. But, as far as I can judge, his opinions never really had the slightest chance of being received as he expected them to be, and I believe it was a member of the Society who gave the Scholastic verdict against him: *Quae vera dixit, non nova; quae nova, non vera sunt.*

The fact is that the Jesuits had a double question before

them, one very easy, and another much less so. As already stated, they never for an instant thought of making his system theirs, either at once or by degrees. But were they to allow it in the Order as a defensible theory? or had they to exclude it from their teaching altogether? This could hardly be answered off-hand. There is a decree dated from about a year before Descartes' death that runs thus:—

“Complaints have been brought against Professors of Philosophy that they lose time over useless questions, that they disturb the order of the matters which they teach, that they take too much liberty in choosing their opinions. But the judgment of the Congregation is, that nothing else is required save the vigilance of Provincials and Rectors.”¹

In this decree, several things are to be noted. First of all, the date. Secondly, the complaints (such as had never been made before) that coincide with that date; and the matter of complaint also points to the perturbation produced by Descartes' system. His methodical doubt, his denial of the vital principle in animals, his vortex-theory, his inquiry after the place of the soul, must have appeared to the Scholastics very “useless questions,” to say the least. His new theory “disturbed the order” of metaphysical disquisitions much more than it altered their results. And if anything was needed still to point out Descartes, it is the complaint of the “too great liberty”—the Latin has it *licentiam*—which his adherents were wont to take. Thirdly, we may note, in conjunction with the date, the refusal of the Society to put down obnoxious Cartesians that were to be found amongst its members. And lastly, the somewhat disdainful tone of the remark that the vigilance of local Superiors was quite sufficient to obviate any inconvenience that might otherwise result from this tolerance. But tolerance was one thing, acceptance was another. As to the question whether Cartesians ought to be tolerated, the Jesuits had to refer to their first principle of conduct, and inquire whether the doctrine brought forward by Descartes was, neither in itself nor in its results, contrary to the Catholic faith. Cartesianism could certainly be understood in a manner that was not incompatible with the doctrines of the Church, and Descartes himself was a living proof of that; but could it not be understood otherwise? And—worse still—was it not possible that the very principles of the system led surely, when fully matured, to an irreconcilable hostility between Reason and Faith? This was to be seen; and this was what the Society waited for, ready to

¹ 9 Congr. Gen. Decr. xxiii., 1649.

point against the new philosophy all the resources of their formidable arsenal of argument and erudition, as soon as they saw it turn the wrong way.

At first, all seemed to go well. A moderate Cartesianism, mixed with many ideas of the School, soon became popular among the French clergy, and is easily discernible in the writings of Bossuet and Fénelon; those of the former, especially his *Élévations sur les Mystères*, contain many passages equal to the finest of Descartes' *Méditations*, and tending in the same direction. Its influence is also clearly to be seen in the *Logique de Port-Royal*; and though the Jesuits were the deadliest enemies of the Jansenists, by whom that work was published, they could not deny its value as a text-book.

But Spinoza came on to the scene, followed by Bayle. Both of them were partisans of Descartes; both of them went much further than he. Pantheism on one hand, indifference and scepticism on the other: such were the consequences that flowed from the principles of the great reformer. It became evident to the Society that Cartesianism, whatever the intentions of its founder might have been, was radically bad and dangerous to the interests that it was their duty to protect. It was thenceforth their business to oppose it by every means in their power. In 1677 Spinoza died, and Bayle in 1706. Nineteen years after Spinoza's death, and ten before that of Bayle, the fourteenth General Congregation requested Father Thyrsus Gonzalez, the then General, to draw up an Elenchus, or list of those opinions which members of the Society were forbidden to teach; taking occasion at the same time "to declare how much our Society has always abhorred and does still abhor all novelty of opinion in any question, and especially laxity on points of Morals".¹ I have not been able to procure the Elenchus referred to, but am informed by very trustworthy authorities that it has principally to do with Cartesian opinions, and those maxims of lax morals that gave rise to the biting sarcasm of Pascal's *Provinciales*. A great reaction had set in throughout the Society. All those who had hitherto thought there was room in the bosom of Catholic unity for more than one philosophical system were now dismayed at the consequences of the new doctrines, that appeared more and more clearly every day; and set themselves to work to destroy Cartesianism root and branch, before it was too late. Of course, in this reaction, as in all reactions, there were

¹ 14 Congr. Gen. Decr. v., 1696.

excesses. The too zealous opponents of the fashionable system then abroad did not always discern what they ought to assail in preference, and how to assail it; and they often battered at the strongest points of the theory as fiercely as at the weakest. Theses were even published, in which it was stated that to affirm the existence of atoms was to commit the crime of heresy! It was all of no avail. Cartesianism answered to a want of the human mind—the want of novelty. Men were tired of hearing the same eternal theses eternally attacked and eternally defended by the same objections and the same proofs. It was as idle to attempt a successful stand against a system which—rightly or wrongly—professed to supply that want as to stop a mighty wind in its onward course. Had the Jesuits been as wise then as it is easy to be now after the event, they would have endeavoured to meet the public demand by other and more striking novelties, not inconsistent with faith. A negative position, a mere denial, is always disadvantageous; and in this case it had the peculiar disadvantage of engendering new enmities: the Jesuits had already enough of old ones.

They had now to do with four sorts of adversaries, if not more, in the field of speculation alone. From the first, Protestants were their natural enemies. Their controversies with the partisans of Baius and of Jansenius had created others, no less implacable and no less ardent than the first. The whole Order of St. Dominic was, to a man, inflamed with burning zeal (none the less earnest for being kept down by the commands of the Holy See) against that upstart Society that had shown itself able to hold its own in presence of their invincible expounders. And Cartesians of every sort, from the most moderate to the most extreme, were deeply offended at the sudden change of front which the Jesuits had just effected. Then Voltaire appeared.

The first thirty years of the 18th century were thus completely taken up with struggles in the intellectual sphere, even before the last-named combatant entered the arena; afterwards, the conflict became still fiercer and more difficult to sustain. "*Qui trop embrasse, mal étreint*," says the French proverb; and it would seem that the Jesuits, in their ambition of universal activity, had not sufficiently reckoned what amount of intellectual power could be expected of a small body that never counted more than from ten to fifteen thousand effective members. Moreover, the 18th century is notable by a marked absence of philosophical talent amongst them. The decree of the sixteenth General

Congregation bears obvious traces of a feeling of weakness. It affirms that the Scholastic doctrine, "being more convenient for Theological purposes, must be maintained"; which evidently shows that many were of opinion to set the system aside, and follow in the wake of Huet, Malebranche, Leibniz, and all such authors as favoured Christianity in any way soever. The paragraph that concerns the study of experimental Physics is curious also; but the whole decree is worth studying.

"Several Provinces have requested the Congregation to provide lest, on one hand, too much liberty of opinion enter into our schools, and lest, on the other, the minds of students be narrowed by mere speculations and *metaphysical subtleties*." Thereupon the Congregation decides as follows:—

"1. That the philosophy of Aristotle is not contradicted but confirmed by that more agreeable kind of study which, by means of mathematical principles and the experiments of the erudite, explains and illustrates the more remarkable phenomena of nature.

"2. *Since the Society has embraced the philosophy of Aristotle as more useful to Theology*, it must absolutely be maintained, according to what is prescribed in the Constitutions and the Rules that concern our studies. And that not only in Logic and Metaphysics, but also in Natural Philosophy, where the Peripatetic system concerning the constitution of bodies is not to be omitted.

"3. Should the Provincials notice that any Professor is fond of new things, and sets the aforesaid doctrine aside, either openly or by subterfuges, he is to be removed from his charge."¹

The words "*metaphysical subtleties*" point to a great change come over the whole Order. A hundred years before, no one would have dared, would even have thought, to brand the time-honoured disquisitions of the School with such an epithet; and now, with the best of intentions, it slips into the very declaration made by the heads of the Society in favour of Scholasticism. *Metaphysical subtleties*! All the 17th, all the 18th, century breathes in those words. Again, notice the second decision. "What's done cannot be undone." Since the system *has* been chosen, let us keep to it. It certainly is more useful for Theology. As for its other merits, we may have our doubts. The Society chose it at first for no other motive than the one we allege, and until that motive is proved to be mistaken, we must stand by it. Cardinal Ptolemai is a very good representative Jesuit philosopher of those times. His treatment of the question of Matter and Form is quite typical. He candidly states the difficulties against the system, points out the answers made, and shows how those answers fail to give satisfaction. Nevertheless, he holds to it because of authority and the wisdom of antiquity, &c.

¹ 16 *Congr. Gen.*, 1730.

Scholasticism was plainly doomed, and the decree above quoted is a proof of what was going on within the Society. That it was not sufficiently enforced is certain; for, only twenty-one years after, in 1751, the seventeenth General Congregation found it necessary to remind members of its provisions. This was again a useless protest. Cartesianism had succeeded in destroying the confidence they had once felt in the old doctrine; and with less confidence came, of course, less study, which engendered greater distrust; and so on. We know what the last Jesuits of the 18th century taught—an amalgam of propositions taken at random from authors of the most opposite opinions. Read the works of Hauser, Mayr, Storchénau, Zallinger and the other best-known Jesuits who at that period wrote upon philosophy. They did not even understand the difference between the Scholastic theory of ideas and Lockian or Gassendian empiricism; in the problem of the union of mind with matter they maintained the theory of Plato, and Descartes' *influxus physicus*, taking these for identical with the Aristotelian system; they made not the slightest difference between the sensitive and the spiritual faculties of the soul. These poor representatives of the School—for they believed themselves to be Scholastics—quoted at every page Locke, Leibniz, Descartes, Wolff, Bacon, Gassendi (a singular collection), as authorities by whom every question was to be decided; but as for Aquinas, his works had become almost a *terra incognita* for them. True, they were practically faithful to their great maxim even then. Scholasticism was at that time so entirely overwhelmed with ridicule, so completely unknown, that it would have been a task above their forces to set it up again. They would have undergone no end of criticism, and times were not such that they could afford to render themselves laughing-stocks more than was absolutely necessary. They therefore tried, by a practically clever, though most unphilosophical, mixture of different doctrines that were not hostile to the Church of Rome, to keep pace with their century without giving way to it. But enough has been said to show that when the Society of Jesus was dissolved towards the end of the century, its philosophical power and influence had already been wholly lost.

Here the present article may be brought to a close. The history of philosophy amongst the Jesuits in our century is closely connected with the contemporary revival of Scholasticism, and may perhaps on some future occasion be treated in this connexion.

VI.—CRITICAL NOTICES.

Phantasms of the Living. By EDMUND GURNEY, M.A. (late Fellow of Trinity College, Cambridge), FREDERIC W. H. MYERS, M.A. (late Fellow of Trinity College, Cambridge), and FRANK PODMORE, M.A. 2 Vols. London: Rooms of the Society for Psychical Research, also Trübner & Co., 1886. Pp. lxxxiv., 573; xxvii., 773.

What should be our philosophic attitude towards alleged facts, apparently well attested, of which we can give no satisfactory physical explanation? This question will probably suggest itself to many of the readers of *Phantasms of the Living*; and it will receive many answers, verbally expressed or practically acted on. Between those who greedily swallow as accredited ghost-stories the accounts of mysterious appearances here presented to us and those who reject them with ridicule and scorn, there will lie a great body of "common sense" folk who are content to entirely ignore them. But there may also be some to agree with the present writer who, in already noticing these volumes in *Nature*, said: With regard to spontaneous telepathy, notwithstanding the large amount of evidence so carefully collected and criticised, I prefer to credit the whole to a suspense account.

And what is Telepathy? In the words of our authors it is "*the ability of one mind to impress or be impressed by another mind otherwise than through the recognised channels of sense.*" We call the owner of the impressing mind the *agent*, and the owner of the impressed mind the *percipient*; and we describe the fact of the impression shortly by the term *telepathy*." So far good; but before proceeding further we naturally inquire what, in the authors' view, is the relation between the mind and its "owner". Mr. Gurney, who is responsible for all but some eighty pages (by Mr. Myers) in these volumes and whose work throughout displays extraordinary skill and candour, declares at the very beginning that "Mental facts are indissolubly linked with the very class of material facts that science can least penetrate—with the most complex sort of changes in the most subtly-woven sort of matter—the molecular activities of brain-tissue". But elsewhere he tells us that the difficulty of rounding-off the idea of personality and measuring human existence by the limits of the phenomenal self suggests "a deeper solution than the mere connexion of various streams of psychic life with a single organism"; namely, "that the stray fragments of 'unconscious intelligence,' and the alternating selves of 'double consciousness,' belong really to a more fundamental unity, which finds in what we call life very imperfect conditions of manifestation". On the whole, I take it, Mr. Gurney would not be prepared to maintain the indissoluble connexion between

psychoses and neuroses. Assuredly Mr. Myers would not. He believes that, "besides sub-conscious and unconscious operations, *super-conscious* operations also are going on within us, operations, that is to say, which transcend the limitations of ordinary faculties of cognition, and which yet remain—not *below the threshold*—but rather *above the horizon* of consciousness, and illumine our normal experience only in transient and clouded gleams". We may liken the mind to a river with its surface of consciousness and its undercurrents of unconscious and sub-conscious operations. To these, if I take him aright, Mr. Myers would add condensations on the surface from a surrounding atmosphere of the super-conscious. In any case, in the Introduction, Mr. Myers emphasises his antagonism to "the materialistic synthesis of human experience. The psychical element in man," he insists, "must henceforth almost inevitably be conceived as having relations which cannot be expressed in terms of matter."

I have thought it well to draw attention to the authors' attitude towards this vexed question. It is not a question, however, on which they themselves lay much stress; nay rather they feel constrained to leave the physical aspect of the problems with which they deal on one side; and in this we will for the rest follow them. "However things may be," they say, "on the physical plane, the facts of which we present evidence are purely *psychical* facts; and on the psychical plane, we can give to a heterogeneous array of them a certain orderly coherence, and present them as a graduated series of natural phenomena."

Now from the study of any graduated series of natural phenomena the laws of their nature and origin are apt to emerge. Let us therefore turn to the phenomena and their emergent laws.

The phenomena of telepathy seem to fall under two heads: first, what may perhaps be termed simple or ideal transference, where an idea, mental image or motor impulse is transferred as such from an agent or agents to a percipient; secondly, phantasmal or clairvoyant transference, where that which is transferred is not an affection of the agent but an idea of the agent as affected. An example of each will serve to bring out the difference between them: (1) Mrs. Severn, at Brantwood, Coniston, wakes up with a start, feeling that she has had a severe blow on the mouth. At the same moment her husband, sailing on the lake, was caught in a squall and was struck in the mouth by the tiller of his little craft. Here a painful affection of the husband is transferred as such to his distant wife. (2) Mrs. Bettany, when a child of about ten years old, was walking in a country lane reading geometry; suddenly she saw a vision of a bedroom on the floor of which lay her mother, to all appearance dead. She fetched a doctor and led him to the room, where they found her mother actually lying as in her vision. Here that which was transferred was not a sensation of swooning but a vision of the swooning mother. This inverted transference is so noteworthy

that I will illustrate it by another case. Mrs. C. is at church, and her children wish to remain for a christening; 'I cannot,' she said; 'somebody seems calling me; something is the matter'. She was summoned next day to the deathbed of her husband, concerning whom she had no more cause to be anxious than that occasioned by his reporting himself to be a little bilious. Here, be it noted, it is not the sense of wanting but the sense of being wanted that is transferred. This change of voice from active to passive is hard to explain on any telepathic hypothesis.

In both ideal and phantasmal transference we have (1) voluntary and (2) involuntary cases. The voluntary transference of ideas, tastes, smells, mental pictures, has been the subject of painstaking investigation on the part of some of the members of the Society for Psychical Research, and constitutes what the authors term their "experimental basis". I must refer the reader who is unacquainted with the nature of the evidence to the work under review or the Reports of the Society. Suffice it to say that remarkable results have been obtained under conditions which, in the opinion of the investigators, preclude trickery. Still at present we seem to know absolutely nothing of the laws of the supposed transference. Those who have the percipient power are few; and it is noteworthy, as Prof. S. Newcomb, in his presidential address last year to the American Society for Psychical Research, has pointed out, that these few are strangely grouped—three or four children and a waiting maid in one family, that of the Rev. A. M. Creery, and two or more in the employment of Mr. Malcolm Guthrie. It is also to be noted that the percipient power of Mr. Creery's children gradually evaporated and eventually entirely deserted them. "The Creerys had their most startling successes at first, when the affair was a surprise and an amusement, or later, at short and seemingly casual trials; the decline set in with the sense that the experiments had become matters of weighty importance to us, and of somewhat prolonged strain and tediousness to them." Is it hypercritical to draw attention to these facts; and if so, ought we not perhaps to be hypercritical? The authors are fully aware of the importance of their experimental basis. Accepting thought-transference as a working hypothesis, they must, if they would convince friendly sceptics, formulate its laws and enunciate its conditions.

Of voluntary phantasmal transference we have some examples. Two students of naval engineering at Portsmouth were in the habit of holding mesmeric sittings. One of them before he was hypnotised resolved to appear phantasmally to a young lady at Wandsworth. He is reported to have done so, having a vision of her, and appearing to her as a phantasm. In the later copies of the work an additional case is given. The Rev. C. Godfrey, as he retired to bed, "set himself to work with all the volitional and determinative energy he possessed" to stand at the foot of a friend's bed. He vividly dreamt he met her and asked if she had

seen him. 'Yes.' 'How?' 'I was sitting beside you.' The lady that same night woke and went downstairs for some soda-water, and as she returned saw Mr. Godfrey standing under the large window on the staircase. Accepting for the nonce the facts as stated, how are they explicable by thought-transference? What have they in common with the experimental basis?

The following involuntary case of ideal transference is more on the lines of the experimental results. Mr. J. G. Keulemans sees in his mind's eye, while engaged with some very easy work, a basket containing five eggs, three of which were notable eggs, smudged or very round or unusually oval. At lunch he sees two of these eggs on the table. And it turns out that his mother-in-law had placed five such eggs in such a wicker basket and had thought of sending them to him.

Lack of space prevents my illustrating here the many and varied forms of involuntary phantasmal transference. A great number of them are cases of what we may call direct transference, that is, transference from a single agent to a single percipient; a few are reciprocal, as when two sisters walking in the fields hear their names, 'Connie and Margaret,' called out, at the same time that their fever-stricken brother was exclaiming in his delirium, 'Margaret! Connie! Margaret! Connie! Oh, they are running by a hedge, and won't listen to me.' Some cases are collective, where the phantasm is seen by two or more percipients.

Let us now turn to the consideration of the conditions of transference. They clearly include (1) the state of the agent; (2) the state of the percipient; (3) the nature of the *rapport* between the two.

Although there are a few cases in which the agent is not in any abnormal condition, these would seem to be exceptional. In the great majority of involuntary phantasmal appearances the agent is undergoing some crisis, and in the greater number of these critical cases the crisis is the supreme crisis of death: "Of the 147 coincident dreams which are included in this book—as at least finding in telepathy, if it exists, their most natural explanation—no less than 78 have represented or suggested death". "It is in this profoundest shock which human life encounters that these phenomena seem to be oftenest engendered; and, where not in death itself, at least in one of those special moments, whether of strong mental excitement or of bodily collapse, which of all living experiences come nearest to the great crisis of dissolution. Thus among the 668 cases of spontaneous telepathy in this book, 399 (or, among 423 examples of the sensory externalised class, 303) are death-cases, in the sense that the percipient's experience was one of serious illness, which in a few hours or a few days terminated in death." And of these death-cases 9 per cent. are where the death was by drowning. Speaking of the time-correspondence in these death-cases, Mr. Gurney says: "Thus the fact that certain psychical phenomena form a

cluster, comparatively thick at first and gradually becoming more and more sparse, in the few days that follow deaths, would strongly indicate some common bond of connexion between the phenomena and the deaths, even if such a thing as telepathy in connexion with living persons had never been observed. But as a matter of fact, we find the cluster of cases as thick just *before* life has ceased as just *after*. Hence the presumption of a single common cause for the whole group." Yes. Could we but be sure that the record of the misses had been kept as carefully as that of the hits!

The state of the percipient does not seem to be in the generality of cases abnormal apart from the fact of percipency. There is a somewhat marked preponderance of female percipients (58 per cent.). But this preponderance of female informants may, Mr. Gurney thinks, probably be due to their having, as a rule, more leisure than men for writing on matters unconnected with business. According to the state of the percipient the cases fall into four classes—(1) where the percipient is in the hypnotic condition; (2) dream-cases; (3) borderland cases, which occur on the dim borderland between sleep and normal wakefulness; and (4) where the percipient is normally wide-awake and in full possession of his or her faculties. Feelings of uneasiness or depression may precede or accompany percipience; but these may perhaps be regarded, on the transference-hypothesis, as telepathic in their origin.

In passing to the state of *rapport* between agent and percipient, we come to a point of central interest and importance. In the early stages of experimental transference the occurrence of the phenomena depends on a specific *rapport* previously induced by mesmeric or hypnotic operations. To the authors this mesmeric *rapport* (in some, at any rate, of its manifestations) seems nothing more than the faculty of thought-transference *confined* to a single agent and percipient, and *intensified* in degree by the very conditions which limit its scope. In the case of experimental ideal transference there does not seem to be any very definite bond between the agent and the percipient. For the rest, in phantasmal transference, the *rapport* has usually, we are told, been that of kinship or affection. But in the analysis of the table of numbered cases, Mr. Gurney says: "It will be seen that only in 47 per cent. of these cases is any blood-relationship known to have existed between the parties; and since in many cases the relatives of the percipient will have naturally belonged also to the circle of his intimate friends, it seems reasonable to conclude that consanguinity, as such, has little if any predisposing influence in the transmission of telepathic impressions". The bond of affection would thus seem to constitute the closest *rapport*. But Mr. Gurney regards collective cases as "strongly indicative of a *rapport* of a different sort—consisting not in old-established sympathy, but in similarity of immediate mental occupation. I suspect,"

he says, "that such a *rapport* might be induced by a common environment—by partnership in that particular piece of the 'life of relation' within which the hallucination happens to fall." In nine cases there seems to have been a previous compact between the parties that the one who died first should endeavour to make the other sensible of his presence; in one case the percipient had requested his brother to appear to him; and in one case, narrated by Miss Bird, the traveller and authoress, there was a promise on the part of the person who died. Then there seem some curiously anomalous cases where the phantasm is that of someone the percipient has never seen, but is more or less intimately connected with someone else present to whom, however, the phantasmal vision is not manifested. For example, Helen Alexander, maid to Lady Waldegrave, was lying ill of typhoid fever. Her fellow-servant had a vision of a person entering the room, whom she instantly felt to be the mother of the sick woman. She had a brass candlestick in her hand, a red shawl over her shoulders, and a flannel petticoat on which had a hole in the front. She subsequently learnt that the phantasmal visitant, petticoat and candlestick, exactly answered to the real articles. Perhaps, however, this case may be regarded as that of the direct transference of a vivid mental picture from the sick girl to her fellow-servant. Taking all the cases into consideration, it is difficult to formulate anything like definite laws of the *rapport*, unless the preponderance of the death-cases be regarded in that light.

I have drawn attention to the marked difference (especially the change of 'voice') between the ideal and the phantasmal cases; and this is a fact to which attention is as clearly drawn in the work itself. But it naturally suggests the pertinent question, How can these phantasmal phenomena be brought under the category of thought-transference? Mr. Gurney displays not a little ingenuity in correlating the two; and that for a good and valid reason. "Whatever my own surmises as to future discovery may be," he says, "in the present state of the evidence I feel as much bound here to prove the theory of thought-transference before admitting causes of an obscurer kind, as in a former chapter to prove the theory of unconscious physical indications before admitting the reality of thought-transference."

Making use, then, of the well-known psychological fact that the objects that we see are largely ideal constructions that we build up at the bidding of some suggestion external to ourselves, and that the details are added by the percipient from the accumulated stores of his own experience, Mr. Gurney brings it to bear upon the question of hallucinations, and points out that what is lacking in them is the suggestion from a real something external to ourselves. The definition of a sensory hallucination would thus be, to use his own words, "a percept which lacks, but which can only by distinct reflection be recognised as lacking, the objective basis which it suggests". No little stress is laid on the *originality*

of construction involved in every sensory hallucination, and a stepping-stone is thus laid to enable us to cross from ideal to phantasmal transference. For the difference, from the results of experimental thought-transference, which telepathic phantasms exhibit in representing what is not consciously occupying the agent's mind—to wit, his own form or voice—ceases to be a difficulty in proportion as the extent of the impression transferred from the agent to the percipient can be conceived to be small, and the percipient's own contribution to the phantasm can be conceived to be large. The details of the phantasmal appearance and the whole setting of the phantasmal picture may thus be drawn from the storehouse of the percipient's own memory, or may partake of the *bizarrie* of what is literally a waking-dream. Where, however, the phantasm includes details of dress or aspect which could not be supplied by the percipient's mind, Mr. Gurney thinks it may be attributed to a conscious or sub-conscious image of his own appearance, or of some feature of it, in the agent's mind, which is telepathically conveyed as such to the mind of the percipient.

Still, granting all that Mr. Gurney would have us grant, there are great difficulties in applying the thought-transference hypothesis to a great number of the cases. Take, for example, the case before quoted of Mrs. Bettany's vision of her swooning mother. It is difficult to see how thought-transference can be made to explain this case. Or take the case of the lady whose black nurse saw a phantasm of the lady's brother who was dying in Tobago. The nurse did not know the brother, and the lady did not see the phantasm. I think that many students of the evidence presented in these volumes will find difficulty in applying in a considerable number of cases the hypothesis of thought-transference. One is almost surprised to find Mr. Gurney speaking quite so confidently as he does when, after giving a general criticism of the evidence and pointing out its various liabilities to error, he says: "What, then, is the likelihood that all these various causes—all these errors of inference, lapses of memory and exaggerations and perversions of narration—will issue in a consistent body of evidence presenting one well-defined type of phenomenon, free in every case from excrescences or inconsistent features, and explicable, and completely explicable, by one equally well-defined hypothesis?" Is the body of evidence altogether consistent? Does it present one well-defined type of phenomenon? Is it completely explicable by one hypothesis? And is that hypothesis well defined?

Mr. Myers cannot answer in the affirmative to all these questions. He is not able to rest content with the hypothesis of thought-transference. And in a "Note on a Suggested Mode of Psychical Interaction" he puts forward independent clairvoyance as an explanation of some at least of the phenomena. More than this, "correspondently with clairvoyant perception," he suggests,

"there may be phantasmogenetic efficacy". It would seem then that, in Mr. Myers's view, if I understand him, the percipient may visit in spirit scenes he has never visited in the flesh, and that his spirit may be visible as a phantasm to the human occupants of these scenes. Into the dimly-lighted spirit-land to which he thus beckons us I dare not follow him here.

In conclusion, let me repeat what I said before elsewhere. The hypothesis of thought-transference, ideal and phantasmal, and the evidence adduced in its favour, must be submitted to the most searching scrutiny and criticism, but it should not be met with easy and ignorant ridicule. Each case reported needs separate and individual consideration. Hence any sweeping criticism of the evidence *en masse* would be beside the mark. Messrs. Gurney and Podmore, who have interviewed many of the witnesses, are in a position to appraise the value of their statements to which no outsider may lay claim. The outsider must content himself with enunciating the truism that the amount of the evidence accepted by each reader as valid will largely depend upon his general opinion of the veracity of his kind. The evidence can only be rejected as a whole by one who is prepared to repeat at his leisure what David is reported to have said in his haste.

C. LLOYD MORGAN.

La Psychologie de l'Enfant : L'Enfant de trois à sept Ans. Par BERNARD PEREZ. Paris : F. Alcan, 1886. Pp. xi., 307.

In this volume M. Perez gives us a second instalment of his studies on the psychology of childhood. The earlier volume, *Les trois premières Années de l'Enfant*, took a general survey of the mental phenomena of this period by dealing successively with such heads as motor activity, sensation, faculty of acquisition, &c. The present work follows the same method. Only, since at this later stage the several directions of mental activity are more clearly marked, the author is able to take up these in something like a systematic order. Thus the volume proceeds to discuss the principal stages of intellection, as Memory and Association, Imagination, Abstraction, &c., and then to deal briefly with the Feelings and the Will.

As in the earlier volume, there is a judicious mixture of the analytic and the descriptive method. Thus, for example, in dealing with the laws of Association, we have first of all an exposition of the precise nature and function of each, and then an account of the special part played by the law in the acquisitions of the particular period considered. In the more analytic portion, M. Perez leans to a considerable extent on the authority of others, as Dr. Bain, Mr. Spencer and more recent writers. Yet he is by no means a mere reproducer of other men's ideas even here. Thus, in expounding the so-called law of Contrast, he suggests as the natural basis of the associations referred to

the impressive contrasts that occur in the everyday successions of natural events, as day and night, noise and silence, pleasure and pain, &c. It is not, however, in dealing with the more abstract principles of psychology that M. Perez shows himself at his best. He has studied the human mind more in nature than in scientific treatises, and his wide experiences enable him to reach many valuable generalisations of a less abstract character. As an example of this happy treatment of the more concrete problems of mind, I may refer to the section on the influence of the feelings on the attention, and more particularly the relation of sympathy to attention. Other illustrations of the same insight into the complexity of mental life are found in the treatment of the connexions between reasoning and action and reasoning and feeling.

The new volume, like its predecessor, seeks to support its generalisations by facts drawn directly from child-life. As might be expected perhaps, these are on the whole less striking and piquant than those which made the account of the first three years so entertaining. Still even the period between three and seven has its own peculiar charm, and M. Perez has done his best to make his readers feel it. He has evidently taken pains to collect a good number of illustrations, and on the whole they are pertinent and striking, though now and again their connexion with the particular point to be illustrated might, I think, be made somewhat clearer. It may be added that the author has supplemented the results of his observation of children by some interesting recollections of his own early experiences, and also by well-selected quotations from works of biography and fiction. These last are a feature that deserve special attention, seeing that psychologists as a rule ignore novels altogether. No doubt the novelist's creation is not so valuable scientifically as a real living character; but it must be remembered that the writer of fiction is bound to be a close observer of mental traits, and that it is reasonable to look in his works for illustrations of psychological truths. The citations from the stories of M. Daudet and of his wife suggest how much valuable material lies ready to the psychologist's hand in the higher departments of fiction.

In most cases it is a pleasure to be able to follow M. Perez to the conclusions he reaches. Yet there are one or two exceptions to this rule. Thus I find myself unable to accept the extremely smiling portrait of the child which the author offers us under the title "*L'enfant optimiste*". "His imaginary griefs (he writes)—for he has some—are as rare or as shallow as his ideal in all things is limited. All the evils of which we exaggerate the importance, those improbable events of which we make certainties, those evils which come from our imprudence, from our misconduct, or from our laxity, and which compose ninety per cent. of our troubles, imaginary or real, the child knows not, dreads not;" and so forth. Of course there is a certain amount of truth in all this. But surely there is another side to the

picture. If the child is shielded partly by his ignorance and partly by our protection from many troubles that harass us, he is exposed to others from which we are free. Who shall venture to sum up the misery represented by the terrors of childhood? I know a case where a child was haunted by the fear of death so that he was unable to sleep at night, and this not because of anybody's painting the terrors of dying to his imagination, but as the result of his own reflections on the subject. Many children of a reflective turn have in view of the suffering that prevails among animals and men become, for the moment at least, pronounced pessimists. The fact is that children's ignorance, if it saves them from certain evils, exposes them to others, and that many things that fail to distress the minds of adults, just because they have grown used to them, are apt to excite poignant sorrow in the breast of a sensitive and imaginative child.

M. Perez is careful to tell us that he is writing a work on psychology, and not on pædagogics. At the same time the discussion of the mental development of children from the age of three to seven—that is to say, during the period of transition from the home to the school—necessarily trenches now and again on practical educational problems. Thus, for example, in describing the characteristics of children's memory, the writer deals separately with the scholar's memory (*mémoire scolaire*). Under this head he gives us some valuable observations on the progress of retentive power in a number of pupils attending a girls' school with which he is acquainted. He tells us at the outset "that the pupils who were most prompt to seize the prominent sides of objects and to indicate that they remarked them were also those who preserved the recollection of them longest". The author explains this by saying that "memory even in early childhood never functions alone, that it is or appears to be essentially connected with the vivacity of the perceptions and the exactitude of the judgments". This is a noteworthy result, for it is one thing to say that a child remembers best what he has observed in the best way; another thing, that the best and quickest observers are the most tenacious in their recollection. It is obvious that this point might very easily be settled if teachers would follow up the observations of M. Perez. Another point in the theory of memory, of no less direct bearing on education, is the manner in which the faculty improves with exercise in the period dealt with. The children referred to began to learn short lessons from about six or seven. During the first seven or eight months there was a distinct improvement in facility of acquisition, a lesson requiring at first 25 minutes taking at last only 20 or 15. This applies to the superior children. The first year disclosed clearly enough the differences among them in acquisitive power, both general and special. From the 7th to the 8th year the facility increased, though in a less marked degree, whereas the average tenacity remained stationary, a fact that tended still more to separate the

quick from the dull. The progress in facility, says M. Perez, was clearly due to exercise, for children coming fresh to school at this age managed in a number of cases to overtake and even to pass those who had had three or four years of schooling. It might be said, however, that the facts tell quite as much the other way—that is to say, bring out the *limits* of improvement due to exercise; and this result harmonises in a striking way with the conclusions respecting the effects of practice in improving sense-discrimination, active response to stimulus, and other actions reached by recent psychological experiment, and suggests that in each case progress may really be due to a more perfect adjustment of the attention. This whole account of the progress of the learning faculty in a school may be specially recommended to teachers as much as to psychologists. It is to be wished indeed that it may stimulate some of the former to attempt a similar table of pupils' progress for their own and others' use. It would be a real boon to the psychologist to have carefully prepared school statistics showing the changes in the acquisitive power at different ages, and the variations observable in these among different children.

JAMES SULLY.

Ethik. Eine Untersuchung der Thatsachen und Gesetze des sittlichen Lebens. Von WILHELM WUNDT. Stuttgart: F. Enke, 1886. Pp. xi, 577.

That the paradox of the identity of virtue with knowledge no longer finds defenders is rightly regarded as an advance in psychological and ethical theory. There seems to be some danger, however, that the opposite paradox of the identity of thought with will may come to take its place. Prof. Wundt's doctrine of "Apperception," as set forth in his *Logik*, is, in truth, an elaborate statement of this paradox. The passive material of thought given in association is supposed by him to receive all its distinctive characters as thought from an act of "apperception" having the essential nature of an act of will. Under the name of Attention, this activity of apperception is assuming with some recent English psychologists the central position that it has in the psychology of Prof. Wundt. The final judgment on the apperception-doctrine can, of course, only be passed by psychologists after examination of it on its merits; but if, as we may suspect *a priori*, the modern, like the ancient, paradox is a one-sided expression of the facts of the mental life, we should expect it to fail, as that was at length seen to fail, in its application to practice. Prof. Wundt's ethical treatise furnishes us with the desired opportunity of testing his psychological doctrine. For there can be no doubt, from the very beginning of the book, that the connexion of his ethical with his psychological principles is as close as he conceives it to be.

In the Introduction (pp. 1-14) ethics is defined as the supreme "science of norms"; logic, in the last resort the only other "Normwissenschaft," being subordinated as "the ethics of thinking". The best method of arriving at the principles of morality is found to consist in a combination of the empirical and the speculative methods. The author proposes to begin, therefore, with an empirical statement of the facts first of the historical development of morality itself, and then of the philosophical systems of ethics which have sprung out of actual morality and reacted on it. After the "inductive preparation" of the first two sections (i. "The Facts of the Moral Life," pp. 15-233; ii. "Systems of Moral Philosophy," pp. 234-371) comes the systematic construction of the remaining two, of which the first is concerned with principles (iii. "The Principles of Morality," pp. 372-510), the second with their application (iv. "The Departments of Moral Life," pp. 511-577).

Section i. is, in effect, a treatise on anthropology in relation to ethics. The most general results of the author's investigation are a "law of three stages" of moral development and a "law of the heterogony of ends". According to the first of these laws, religious ideas are in the beginning the presiding influence in the development of morality; afterwards, moral ideas detach themselves and become independent; finally, there is a return to the primitive unity of the spiritual life, "general human aims" are formed, and the differences among national moral conceptions tend to disappear. The "bearer" of religious and moral conceptions is "the general consciousness". The primitive social group is "the tribe," from which proceeded in diverging development the narrower circle of the family and the wider circle of the state. At first religion was not distinct from morality, or morality from law and custom, or these from each other. Religion, nevertheless, is to be placed first in the order of development, because, while moral customs for the most part can be traced to acts of religious ceremonial, the origin of religion, like the origin of language, escapes us. Those thoughts and feelings are religious that are directed towards a world in which ideals are realised. When man has made for himself religious ideals,—of which there are two kinds, those that finally take shape as belief in a perfect personality, and those that culminate in the thought of a "moral world-order,"—these ideals, by the authority they exercise, modify social customs; and so, under their influence, morality is formed. It is not to be supposed that moral rules were made with any view to their utility either to the individual or to society. The assumption that morality was thus consciously developed vitiates all the ordinary theories, which err by ignoring "the heterogony of ends". Motives now intelligible are unquestioningly assumed in order to explain the actions of the men of former times. The origin of the State, for example, is supposed to be explained by the need men had of protection. In

reality, protection was first attained as an actual result and afterwards perceived to be desirable. Practical results go before theoretical views. The ends are not the causes of development, as is obvious when it is considered that the later stages of development are unknown to the earlier (pp. 179-80). Typically, moral customs are outgrowths from religious ceremonial. That which is rendered to the gods begins to be rendered to powerful men, then to equals, and lastly to men in general; the custom itself all the time undergoing modifications. Afterwards, when customs are reflected on, they are seen to serve various useful purposes, and are supposed to have been invented or evolved for those purposes. As a matter of fact, the purpose was never thought of until the retrospective period. Again, the exigencies of practical life bring about new modifications of custom. New advantages are thereupon seen to be gained, and the new rules of action are consciously followed for the sake of these advantages; but the end that is now consciously sought was not originally the end. Similarly, a person whose aims are egoistic may find that, through the social interconnexion of all human action, his efforts are productive of public good, and may be stimulated to new exertion by the thought of this good which was not at first consciously aimed at. In all such cases the result is that yet other ends are attained which had not been thought of before. For as soon as the attainment of any class of ends has been realised and they are consciously sought, new changes in practice make possible new views of what is attainable, and so on indefinitely. Thus is manifested in social action, along with the law of "the heterogony of ends," the law of "the unlimited growth of forces". The individual reacts on society; but to do this effectively it is necessary that he should be the organ of the "general mind" or "will," which has not yet come to full consciousness in others. Merely individual modes of action have little influence. "Individual customs," for example, are either suppressed by the general will or are accepted as "fashion," the least dignified and the most temporary of all forms of custom.

A whole series of objections to Prof. Wundt's account of the origin and development of morality may be summed up in a sentence. If, as is said, the theories of "the 'Aufklärung' of the 17th and 18th centuries" ascribed too much rationality to man, or too much influence to reason, does not this modern theory ascribe too little? Its merit is in the firm grasp that Prof. Wundt has of the fact of the slow social evolution of human habits and modes of thought. At first it seems indeed that he does not see the necessity of explaining social evolution by its causes and conditions. He rejects all theories which imply that progress is due to the conscious pursuit of ends; and of "natural selection"—beyond, perhaps, a casual allusion—he says nothing. The reason of this is that he has a doctrine of his own, which makes all such explanations superfluous. In his view the evolution of

societies needs no other explanation than the "law of the unlimited growth of forces," or the "principle of increasing psychical energy". Too much influence, it may be objected from Prof. Wundt's own point of view, is ascribed to ideas of the supernatural. For if, as he insists, illusions may proceed from reality, but out of mere illusions no reality can come (p. 340), how can moral conceptions, which he does not hold for illusions, be created by the non-existent gods of man's "personifying apperception" (p. 53)? The deduction of disinterested from egoistic action, he goes on to say (p. 340), reminds us in a measure of the 18th century derivation of religions from the frauds of priests. Does not Prof. Wundt's own account of the origin of morality in a measure remind us of the same theory? It may be allowed, however, that by his contention for a "primitive altruism," in which as well as in "religious reverence" morality has its origin, he does, in the later sections, correct the theory of the exclusively religious, or mythological, origin of morality, which seems to be implied in the first.

From the foregoing summary much has of necessity been omitted that is of more interest in relation to comparative mythology and the theory of prehistoric origins generally than to constructive ethics; and where the author's theses themselves have been indicated, it has been impossible to give any idea of the labour that has been spent on their development. It will also be necessary, for the sake of going on rapidly to the constructive theory, to pass over in silence the greater part of the next section. What is of most importance here is to note Prof. Wundt's conclusions as to the latest phase of philosophical ethics. In the ethical theories of the 17th and 18th centuries, "individualism," he finds, worked itself out. The Kantian idealism, culminating in Hegel, brought about the restoration of the Platonic and Aristotelian doctrine that the State is "more than a sum of individuals," that it has an end of its own different from all merely individual aims. The "Historismus," or "Universalismus" of Hegel, however, tended to deprive the individual of all meaning except that of a "bearer" of the universal idea manifested in history. It needs to be qualified by the individualism of the "Aufklärung"; and it needs a scientific foundation.

Little objection can be taken to this as a general statement; and Prof. Wundt shows, though not adequately, that "objective evolutionism"—the conception, that is, of an evolution of common knowledge and morality from the basis of language and social custom, as distinguished from the "subjective evolutionism" that tries to explain the transmission of ideas by heredity alone—has been arrived at in England independently of the Kantian development. Mr. Stephen's *Science of Ethics*, he finds, is an expression of "objective," Mr. Spencer's *Data of Ethics* of "subjective" evolutionism. When he comes to details, however, there is much in his account of English moralists that is open to the charge of injustice or misapprehension. The perverting influence is to be found partly

in theories of what the course of English thought, or the views of English thinkers, ought to be according to some historical scheme, partly in the occasional use of terms in senses for which the reader is not prepared. When, for example, egoism is described as traditional in English ethics, we may be disposed to protest. The protest becomes needless when we discover that to seek the happiness of another person, or of any number of other persons, is, in Prof. Wundt's opinion, just as "egoistic" as to seek one's own happiness (p. 428). Utilitarianism is only an "enlarged egoism". There is no escape from egoism except in work for social aims, which are realised in no assignable individual or sum of individuals. For the rest, the "greatest happiness principle" can furnish no motive to action. Self-sacrifice "for another," or for "ideal ends," such as "Fatherland," is conceivable, but "it has never come to pass, and will never come to pass, that anyone gives up anything in order that the sum of happiness that there is in the world may become greater" (p. 339).

In the concluding chapter of this historical section, ethical systems are classified "according to motives," and "according to ends". The last named classification, which the author regards as the more important, may be transcribed. The ethical systems are thus divided:—I. The Authoritative Moral Systems; these, again, fall into two kinds, *viz.*, political and religious "heteronomy"; the ultimate end of these systems may be identical with the end of one of the "autonomous" systems. II. The Autonomous Moral Systems: (1) Eudæmonism, (a) Individual Eudæmonism or Egoism, (b) Universal Eudæmonism or Utilitarianism; (2) Evolutionism, (a) Individual Evolutionism or Perfectionism, (b) Universal Evolutionism or Historicism (p. 353). The moral precepts of religion, as well as the political order, Prof. Wundt remarks in discussing this classification, although themselves products of moral ideas, are in the earlier stages of civilisation "indispensable general means of education to morality," and remain so to a certain extent, perhaps permanently. Yet scientifically it is an inversion of the true order of causation to place them first in the human consciousness (p. 355).

The first chapter of section iii. ("The Moral Will") begins with some theoretical preliminaries on will and consciousness in general. "Development of consciousness" is declared to be essentially "development of will" (p. 375). "Feelings and desires" are movements of will that do not arrive at their full expression in external activity. Will is incapable of resolution into anything simpler. Voluntary movements cannot arise out of reflex and automatic movement; on the contrary, mechanical reflex movements arise out of voluntary movements. Accordingly, in the lowest animals there are unmistakable voluntary actions before there are reflexes of clearly purposive character. Prof. Wundt calls his own theory of the will "the autogenetic theory," opposing it to "the ordinary or heterogenetic theory".

It differs from "the ordinary theory" (1) by recognising that an external activity of will must be preceded by an internal activity, "and that generally every activity (*Thätigkeit*) of consciousness bound up with the immediate feeling of activity (*Activität*) bears in itself the essential marks of an activity of the will (*Willensthätigkeit*)"; (2) by recognising as the simplest form of will those actions which are preceded by no conflict of motives, but follow immediately on a single motive—the motive itself being an act of will in an earlier stage. "We characterise with Leibniz as *apperception* every inner activity that has bound up with it the feeling of spontaneity. Those external voluntary activities which follow under the immediate operation of a single and sole motive we name *impulsive actions*" (p. 380).

The human will or consciousness, so far as it is peculiar to a single personality, is an "individual will"; so far as it is common to all the individuals of a society it belongs to a "general will". The inability of the "*Aufklärung*" to recognise "the general will" was a consequence of "psychical atomism" or "the substance-theory of Descartes". When the notion that consciousness must inhere in an individual soul or substance is got rid of, and its reality is seen to consist simply in "actual psychical life itself," and in nothing else, there is no longer any theoretical obstacle to the admission that the general will has equal reality with the individual will, and it becomes possible to escape from the egoism of the individualistic doctrine, the "ethical atomism" bound up with its "psychical atomism".

For the explanation of psychical development a "principle of increasing psychical energy" is required "in complete opposition to the equivalence-principle" of physics. A consequence of this principle is that past psychical events can be explained by their causes, while future psychical events cannot be predicted. For the effects of volitions, according to the principle, are "determined by" causes, but not already "contained in" those causes. The author puts forth his theory as at once a "free-will" doctrine and a doctrine of "psychological determinism". The older determinism and indeterminism, both alike, erred in that they attempted to apply the law of physical causality to mind; one doctrine affirming and the other denying that acts of will are "caused". The truth is that they are always caused, but not according to the physical law of "the equivalence of cause and effect". Although the effects of a voluntary act can never be predetermined from its conditions, past results of volition can be explained from their causes. Indeterminism, in any case, must be rejected "on moral and religious grounds" (p. 409). Teleology in the organic world is to be explained by the direct action of the will on organic forms (p. 408). The author, nevertheless, does not believe in the Cartesian *influxus physicus* (p. 402, note). The whole material world is the creation of the mind; it forms a realm within the realm of spirit; and so physical causation is subordinate to psychical causation (p. 403).

"Man acts freely in the ethical sense when he follows only internal causality" (p. 410). The peculiarity of the conscience consists not in superiority to all motives, but in determination by "imperative motives". "Impulsive motives" are turned into "imperative motives" by means of (1) external constraint, (2) internal constraint, (3) feelings of permanent satisfaction, (4) the representation of a moral ideal of life. The religious shaping of moral ideas, it is repeated, goes before every other (p. 423). The "external constraint" of religious commands precedes political constraint. Similarly "the imperative of internal constraint exercises its effects" first "through the relations of the religious community". "The imperative of enduring satisfaction creates for itself, by the prospect of eternal rewards and punishments, the highest motives that in this form can exist." Finally, "the moral ideal of life" also is capable of assuming a religious form by its identification with the life of a historical person. Religion has all this influence as "educator to morality," because it is itself "the concrete sensible embodiment of moral ideals" (p. 424).

Ethical writers have been accustomed to treat of "goods," "virtues," and "duties". For these terms Prof. Wundt proposes to substitute "moral aims," "moral motives," and "moral norms". These are respectively the subjects of the remaining three chapters of his third section. Beginning with the problem of the ethical end, he decides that "the acting personality as such is never the true object of moral action" (p. 428). "The foreign *Ego*" can no more be the last aim of morality than our own *Ego*. Two social aims alone are left as "the true objects of the moral will," *viz.*, "public welfare" and "general progress". "Subjective feelings of happiness" have no "universal value," and so can have no part in the moral end. The "general human aims" are "objective psychical values". "Here also the principle of the heterogony of ends and the law of the unlimited new creation of psychical products penetrate all occurrence" (p. 432). "Be the direct aims that the individual pursues never so limited, they always overpass their immediate end, and lose themselves at last in the immeasurable stream of development of human mind" (p. 433). "The last aim of moral effort thus becomes an *ideal* aim, never attainable in reality" (p. 434). "The only sufficient, but also the fully convincing ground of belief in a moral ideal lies in the impossibility of setting a limit to mental and moral development, or, which would come to the same thing, of thinking its complete annihilation" (p. 446). The objective ground of punishment is that the actions punished oppose moral development and so tend to annihilate the ideal (p. 436). Motives instead of ends being in question, "every disposition is immoral which consists in an uprising of the individual will against the general will" (p. 448). "As crime consists in an uprising of the single will against the general will, so punishment is the natural reaction of the latter against this uprising" (p. 458). "Ethical norms," like ethical ends, are of three chief kinds—"individual," "social" and

"human". The general rule in cases of conflict is that the narrower must yield to the wider norm (p. 469). In order to gain a "highest regulative idea" we may think of the ideal as unchanging; but mental representations of it are in unceasing development. "That this development is the last moral aim we can comprehend, in which all individual aims disappear, remains the universal postulate that finds in the historical shapings of ideal problems its particular embodiments" (p. 483).

The basis of Prof. Wundt's ethical system is evidently—apart from his theory of Apperception—the doctrine of Evolution, which has taken form for him especially in the ideas of human progress and of "the general mind". Unfortunately, these ideas, in Prof. Wundt's mode of conceiving them, seem to have become inextricably mixed with illusory elements. They are at least expressed in the form of very disputable "laws". He also tries to accomplish too much with the idea of progress. It is clear that the moral ideal cannot be defined in terms of "progress"; for in order to know that progress exists we must both have an ideal and know that the movement of things is towards it and not away from it. To make plausible his assertion of a constant and unbroken advance, Prof. Wundt requires a psychological "law of non-equivalence"; and he has to ignore degeneration and dissolution. The effective addition made by the doctrine of evolution to the material of constructive ethics is really much less in the idea of progress than in the new precision given to the conceptions of "social organism" and "general mind". It is a merit of Prof. Wundt's book to have laid special stress on this last conception. In the application of it, however, the weakness of the speculative construction becomes more than ever apparent. This weakness is due essentially to the transformation of "mind" into "will," and so may be traced to the doctrine of Apperception. The question is inevitable, Why should one will submit to another, the "individual will," for example, to the "general will"? From Prof. Wundt's point of view, this question is unanswerable; for he has suppressed all reference to "subjective feeling," and he has made the appeal to reason useless by an unlimited extension of his law of "the heterogony of ends".

The concluding section is divided into four chapters, treating respectively of "The Single Personality," "Society," "The State," "Humanity". Here, as in the rest of the book, in spite of what is promised as to concessions to "individualism," Prof. Wundt's "general will" seems to leave little room for any other will. "The social order," he says, "is not a creation that is there for the sake of individuals; on which account also it needs no justification from the services it renders to the individual" (p. 540). This is certainly quite consistent with the principle of "the general will" as it is here laid down. In the eyes of some readers such a corollary will be of itself sufficient to condemn that principle.

THOMAS WHITTAKER.

VII.—NEW BOOKS.

[These Notes (by various hands) do not exclude Critical Notices later on.]

The Factors of Organic Evolution. By HERBERT SPENCER. Reprinted, with additions, from *The Nineteenth Century*. London: Williams and Norgate, 1887. Pp. iv., 76.

"Though the direct bearings of the arguments contained in this Essay," Mr. Spencer says, "are biological, the argument contained in its first half has indirect bearings upon Psychology, Ethics, and Sociology. My belief in the profound importance of these indirect bearings, was originally a chief prompter to set forth the argument, and it now prompts me to reissue it in permanent form." In the first half, after describing his original acceptance of the Lamarckian doctrine of evolution, and the enlarged view of the factors of evolution that was the consequence of the publication of the *Origin of Species*, he goes on to ask whether the process brought into view by Darwin, taken alone, accounts for organic evolution, as is now supposed by many naturalists. The answer is that "utterly inadequate to explain the major part of the facts as is the hypothesis of the inheritance of functionally-produced modifications, yet there is a minor part of the facts, very extensive though less, which must be ascribed to this cause". Darwin himself came to recognise this more and more, and there are reasons for thinking that the reaction displayed in his later writings ought to be carried further. But if, "along with inheritance of useful variations fortuitously arising, there has been inheritance of effects produced by use and disuse; do there remain no classes of organic phenomena unaccounted for?" To show that there is still another factor of organic evolution is the object of the second half of the Essay. This third factor is that which is so prominent in the *Principles of Biology*, viz., the direct action of the inorganic environment. Both inductively and deductively this direct action is found to be "the primordial factor of organic evolution". As a name for that effect of external causes which depends on a struggle among organisms, Mr. Spencer's own term "survival of the fittest," as well as "natural selection" "calls up an anthropocentric idea" (p. 41). For the purpose of ascertaining their causes, organic phenomena should be contemplated simply as "groups of changes". Human ideas of "fitness" and "unfitness" are then seen to be inapplicable, and it is recognised that natural selection "could do no more than take advantage of those structural changes which the medium and its contents initiated". What then are the relations of the three factors? This is the subject of a speculation at the end of the Essay (pp. 72-5) by which the view Mr. Spencer had formerly arrived at, viz., that natural selection is most important in the earliest stages of evolution, "direct adaptation" in the later (see, for example, *Biology*, § 170) is made more precise. Three stages are now recognised, in the first of which the most important factor is that which has been called primordial, in the second "natural selection," in the third "functional adaptation". The stage in which functional adaptation, constantly rising in importance as activity and complexity of life increase, becomes the chief factor, has been reached by civilised men, among whom such aid as survival of the fittest gives is "usually limited to the preservation of those in whom the totality of the faculties has been most favourably

moulded by functional changes". It is from the point of view here attained that applications to psychology, ethics and sociology, briefly indicated in the preface, would be made, of which it is impossible to exaggerate the importance.

The Origin of the Fittest. Essays on Evolution. By E. D. COPE, A.M., Ph. D. (Heidelberg), Member of the United States National Academy of Sciences; Correspondent of the Royal Bavarian Academy of Sciences. London and New York: Macmillan & Co., 1887. Pp. xix., 467.

This is a book that ought not to be overlooked either by naturalists or by those who are interested in the philosophical aspects of evolution. A majority of naturalists will probably think it carries the Lamarckian reaction against Darwinian explanations too far; and the author's metaphysical expressions are sometimes unguarded; but, both in its general philosophical views and in its explanations of details of structure, it offers interesting and valuable suggestions, worked out with adequate knowledge of the whole subject. Starting from the position that "survival of the fittest" can only explain why variations persist, not how or why they originate, the author puts this question: What is the *origin* of the fittest? His most general answer is—"addition of parts by increase and location of growth-force, directed by the influence of various kinds of compulsion in the lower, and intelligent option among higher animals" (p. 40). The "influences locating growth-force" are further divided into "physical and chemical causes," "use" and "effort" (p. 195). Evolution of organisms takes place according to the laws of "acceleration and retardation," and of "the unspecialised," the last of which in particular has important bearings on mental evolution. "The doctrine of the unspecialised teaches that the perfection produced by each successive age has not been the source or parent of future perfection. The types which have displayed the most specialised mechanism have either passed away, or, undergoing no change, have witnessed the progress and ultimate supremacy of those which were once their inferiors" (pp. 233-4). "The predecessors of all characteristic or specialised types have been unspecialised or generalised types" (p. 396). Consciousness is only possible to matter which has not fallen into fixed and automatic relations of its atoms (pp. 418, 442). Protoplasm, the author tries to show by chemical considerations, is such an "unspecialised" form of matter, but not necessarily the only one. "In the highest form of development, that of brain mechanism, automatism is the enemy, and consciousness the condition of progress" (p. 402). Unconscious acts have been derived from conscious acts by organisation; and "the vegetative and other vital functions of animals and plants are a late product of the retrograde metamorphosis of energy," which, like matter, passes from an unspecialised to a specialised state. "Automatism then represents a condition of 'lapsed intelligence' and diminished life." "Free-will," admitted as a means of accounting for "the unknown in moral progress," is comparable to "the apical bud of a growing tree" (pp. 239-40). Only a few of the author's more general speculative conclusions have been given here; but the whole book deserves study.

Luck, or Cunning, as the Main Means of Organic Modification? An Attempt to throw additional Light upon the late Mr. Charles Darwin's Theory of Natural Selection. By SAMUEL BUTLER, Author of *Life and Habit*, etc. Op. 8. London: Trübner & Co., 1887. Pp. ix., 328.

Mr. Butler's *Op. 8*, while it has all the brilliant literary qualities of his early work, is at the same time perhaps the most serious of his contribu-

tions to evolutionary speculation. The "two main points" on which he has been "insisting for some years past" could not be better stated than they are in the opening sentence, *viz.*, "the substantial identity between heredity and memory, and the re-introduction of design into organic development"; this "design" being the Lamarckian or "Erasmus Darwinian" design, or "cunning," of the organism itself, as opposed at once to the Paleyan or external design and to the "luck" of "Charles Darwinian" spontaneous variation. If Mr. Butler wishes to secure for these ideas all the recognition they deserve, he should present them thus separately, as elements in a complete theory of evolution. Instead of this, although he sees clearly that they are two ideas and not one, he insists on presenting them fused into the single theory of *Life and Habit*, which, however many incidental points he may make against the scientific men, after all cannot be accepted as an adequate theory. Hering's identification of heredity with memory is of course just as consistent with Darwinian as with Lamarckian evolution, both of which equally imply inheritance of variations, "spontaneous" or "functional" as the case may be; and the explanations of Darwin and of Lamarck, as Mr. Spencer is now showing, are not mutually exclusive. For Mr. Butler to admit this, however, would spoil the fun. He would not be able, out of Mr. Spencer's opposition of "inheritance of functionally produced modifications" and "survival of the fittest" (p. 46) to make the antithesis of "survival of the fittest" and "*heredity*"! The same antithesis, with the assumption that heredity is the special property of the Lamarckian doctrine, is constantly appearing in the anti-Darwinian chapters. There are one or two passages (*e.g.*, pp. 262-3) from which it may be inferred that the perversity of the chapters just referred to is not altogether unconscious. It is worth while to point out that the really strong resemblance between Hering's and Mr. Butler's theory of memory and instinct and certain passages recently selected by Mr. Spencer from the *Principles of Psychology* is not, where Mr. Butler looks for it (and of course does not find it), in the identification of the *subject* of "race-experience" and personal experience, but in the identification of their *characters*; both tending to become unconscious as they are perfected, and by the same psychological law. The superiority of "unconscious" mind, which was so prominent in *Op. 3*, is an idea to which the author does not now recur. He seeks rather to prove that there is *conscious* mind everywhere. Perhaps he thinks he has worked the former vein sufficiently. In his character of the restorer of mind to the universe, he is able to write a delightful description of the collapse of "the protoplasm boom" "in the autumn of 1879" (pp. 146-7). The most remarkable feature of his present work, however, is not the criticisms of men of science, but the Heracleitean theory developed in c. xi. and in single passages of other chapters, notably pp. 28-31, 43-4, 75-9, 313-17. May his readers indulge the hope that this theory will not become to him "a white elephant," as he confesses the theory of *Life and Habit* has been?

Social History of the Races of Mankind. Second Division: 'Papuo- and Malayo-Melanesians'. By A. FEATHERMAN. London: Trübner & Co., 1887. Pp. xviii., 507.

This second division of the author's herculean enterprise, issued after the fifth and the first (see *MIND* vii. 153, x. 300), appears after a shorter interval than separated the two others, and encourages the hope that remaining volumes (of which there should be five, according to what was said in the first) may see the light in progressively shorter times. Yet it is not surprising that the publication of matter that has to be collected by such wide and laborious research and reduced to sufficiently uniform

statement for purposes of comparison should be a somewhat slow process. There is nothing to be added here to what has formerly been said of the author's extraordinary patience and diligence in the composition of a work which he now describes (incidentally) as a "history of peoples in their social capacity, including their manners and customs, their government, their religion, their superstitions, and their literary, artistic and scientific advancement," or, more shortly, as "a universal history of civilisation". That, as such, it differs from Mr. Spencer's *Descriptive Sociology*, as he now claims, and not less from the philosophic *Principles*, may readily be granted without prejudice to a remark previously made in these pages, that, when he formerly called it "a manual of Sociology—a science as yet non-existent," the author did not appear sufficiently to recognise the constructive work already done on that field. Another remark that was then hazarded, as to the value of his authorities for facts, is, however, to be unreservedly withdrawn. It was made at the time upon a too cursory inspection of the volume under notice, and cannot now be in the least upheld against the evidence afforded, that when he rejects later for earlier records of travel it is done upon a deliberate and well-grounded opinion of their relative merit.

Life of Giordano Bruno the Nolan. By I. FRITH. Revised by Prof. MORIZ CARRIÈRE. ("The English and Foreign Philosophical Library," Vol. XXXI.) London: Trübner & Co., 1887. Pp. xii., 395.

This long-expected book, although containing much reference to Bruno's works and philosophy, claims attention at present more as a biography than as a philosophical study. The change of title from that first announced—"The Life and Works of Giordano Bruno"—may be taken as an indication that the original purpose has been only partially carried out; but we are told that "it is in contemplation to print a second volume, containing a summary of the works, with the documents of the trial and other confirmatory evidence". The biography is interestingly written and accurate in its facts; and if it is sometimes a little filled out by conjecture the reader is supplied with material for an independent judgment. It relates practically everything that is known of Bruno's life, including the results of the latest documents of all,—those discovered in the archives of Geneva by M. Théophile Dufour. These documents (published by M. Dufour in 1884) fix Bruno's residence at Geneva in 1579, and make it five instead of only two months. For the rest they show that his aversion from Calvinism took an active form, and explain sufficiently why he quitted Geneva so early; relating some proceedings of the Council against him "for having caused to be printed certain replies and invectives against M. de la Faye" (then Professor of Philosophy in the Academy), in which "he had erred in the doctrine and had called the ministers of the Church of Geneva *pedagogues*". The volume has been revised by Prof. Carrière, and appears simultaneously with the new edition of his own *Philosophische Weltanschauung der Reformationszeit*, mentioned later on in the present No. The general view taken in it of Bruno's philosophical position is identical with Prof. Carrière's, of which something will be said in the promised Critical Notice of his work. In detail it does not simply follow any previous exposition, but is the result of independent study of Bruno himself, of what has been written on him, and of his period. The critical part contains many valuable hints towards the understanding of his relations to later philosophy, and shows real appreciation of his character and writings. Before saying more, it will probably be best to wait for the appearance of the second volume, when we may expect further development of suggestions such as are made on pp. 45, 158, etc. The author has appended to

the *Life* (1) a list of "the existing works of Bruno" with enumeration of editions and short description of the contents (pp. 310-339), (2) a notice of the Noroff collection of unpublished MSS. (pp. 343-369), (3) a list of "the lost works of Bruno" (pp. 373-377), (4) an "alphabetical list of authorities" (compiled by Mr. Wm. Heinemann), from which hardly any book or article dealing with Bruno can have been omitted (pp. 379-388), (5) the letter of Scioppius (pp. 389-395). The volume is inscribed "to the memory of Nicholas Trübner, the faithful friend and kind adviser who proposed the subject of this book, whose interest in it continued unflinching to the last hours of his life, and without whose aid these pages could never have been written".

Life of Antonio Rosmini Serbati, Founder of the Institute of Charity. Edited by WILLIAM LOCKHART, Procurator of the Order in Rome, &c. 2 vols. London: Kegan Paul, Trench & Co., 1886. Pp. xxxiii., 360; xi., 352.

It is necessary to return, however briefly, to this book, which was little more than mentioned in the last No. of *MIND*, p. 135. It gives not only, in simple and straightforward style, all the information that could be desired about the life and character of the saintly man, but includes in the few chapters devoted to the thinker a translation of two pieces from Rosmini's own hand (ii. 242-72) that have but recently seen the light in the Italian original. In these he first sketches the history of modern philosophy from Locke, defining his own position and especially his relation to Reid and Kant, and then gives under nine heads a short and precise summary of his philosophic system. With the succeeding chapter, showing the harmony between Rosmini and St. Thomas in an essay (pp. 275-303) borrowed from the late Bishop Ferrè of Casale in Piedmont, the reader has thus a convenient means of judging of the general import of a system of thought more than ordinarily voluminous in its elaborated form. It may remain doubtful whether the countrymen of Reid have much to learn, except in point of curious erudition, from the volumes which the piety of Rosmini's English translators has been making accessible to them, but after this *Life* there can be no question of the supreme interest attaching to him as a man of spiritual gifts. Mr. Cotter Morison has been saying that the saint, like the genius, is born so. Rosmini was a born saint, as every line of his biography tells. It tells also, what few can have known, how, or at least how much, the widespread Roman Catholic missionary movement in this country during the last half century had its spring in the charitable faith of the secluded Italian thinker.

The Service of Man. An Essay towards the Religion of the Future. By JAMES COTTER MORISON. London: Kegan Paul, Trench & Co., 1887. Pp. xxxi., 318.

The greater part of this most readable book—where an historical estimate (mainly unfavourable) is made of the influence and work of Christianity in the world—lies out of the province of *MIND*, but incidentally, and more especially in a final chapter "On the Cultivation of Human Nature," there is a strain of philosophical observation claiming recognition. The moralising effects of Determinism are set forth with peculiar force. A very gloomy Preface (pp. xxx.), bringing into sharp and exclusive relief certain elements of imminent danger in the social condition of the more advanced nations, has much in it that should be laid to heart by all serious-minded people at the present time, but reads rather curiously by the side of the generally optimistic pages of the body of the book.

Anatomy and Physiology in Character. An Inquiry into the Anatomical Conformation and the Physiology of some of its Varieties; with a Chapter on Physiology in Human Affairs—in Education, Vocation, Morals and Progress. By FURNEAUX JORDAN, F.R.C.S. London: Kegan Paul, Trench & Co., 1886. Pp. xi., 185.

The author puts forth as the result of long observation a classification of men and women into three types—the “shrewish,” the “non-shrewish,” and the “intermediate” or mixed. Of these the second is not merely the negation of the first, but is a distinct type. After a chapter on “Physiology in Human Affairs” (c. i.), and an account of some characteristics of “assaulted wives in hospitals,” in which the “clue to character” that is the starting-point of the inquiry was discovered (c. ii.), he goes on to describe the physiological characters of “the shrewish woman,” “the shrewish man,” “the non-shrewish woman,” and “the non-shrewish man” (c. iii.-vi.), and “the Anatomy of Shrewish and Non-shrewish Persons” (c. vii.). Then follow some “Observations on the Physiology of Shrewishness” (c. viii.) and a “Note on Shrewishness and Non-shrewishness in Literature.” The words “shrew,” “non-shrew,” &c., the author says, “are used in these pages with great reluctance. They would not be used at all if any other words conveyed the meaning which they are intended to convey. They are not used as nicknames, not even as words of disparagement; they are used in a strictly scientific sense, to denote special phases of character, and the union of such special phases with certain anatomical and physiological peculiarities” (p. 63). As a consequence of the knowledge gained, “human intelligence and human volition” may “interfere in the evolutionary process” to the great advantage of the race, if, “by common consent, shrewish men and women,” for reasons explained at length, are “left out in the marriage arrangement.” Perhaps the author has not considered carefully enough, for one thing, whether his classification of human types is exhaustive, but the book is full of varied interest.

Scottish Metaphysics reconstructed in accordance with the Principles of Physical Science. By the Writer of “Free Notes on Herbert Spencer’s *First Principles*”. Edinburgh and London: W. Blackwood & Sons, 1887. Pp. xiv., 244.

This treatise, setting forth the kind of theory described in its title on the basis of a criticism of Hamilton’s *Metaphysics*, is not a happy performance in point of style, but yet appeared to call for some amount of detailed notice. This is only deferred.

English Composition and Rhetoric. Enlarged Edition. Part First. “Intellectual Elements of Style.” By ALEXANDER BAIN, LL.D., Emeritus Professor of Logic in the University of Aberdeen. London: Longmans, Green & Co., 1877. Pp. xix., 310.

On Teaching English: With detailed Examples, and an Enquiry into the Definition of Poetry. Same Author, Publishers, &c. Pp. xiii., 256.

The author’s *Rhetoric*, first published in 1866, is being subjected to a radical transformation, to be completed by the publication later on of another volume, as Part Second, dealing exclusively with the “Emotional Qualities of Style.” While the work in its original form bore abundant traces of the psychologist’s hand, these have now become much more deeply marked both in the general disposition of the two Parts and in the details of the exposition, yet without prejudice to the book’s fitness as a manual

for students who have not received any express psychological training. "Figures of Speech," which are specially illustrative of psychological principles, are now treated at more than twice their former length, and placed in the heart of the work, their former place at the beginning being now taken by the more fundamental topics, previously scattered about, of "Order and Number of Words," "Sentence," and "Paragraph". This is a distinct improvement. The remainder of pt. i., from p. 233, is taken up with a more developed treatment than formerly of the "Intellectual Qualities of Style," followed from p. 278 by study of a large number of "Promiscuous Examples". The Intellectual Qualities are now distinguished as "Clearness," "Simplicity," "Impressiveness" and "Picturesqueness," the last-named already involving an admixture of the Emotional. The other notable change thus far is the suppression of "Kinds of Composition" (Description, &c.) as an express topic; what was formerly set out (at considerable length) under this head being now given, or to be given, otherwise in the course of the re-arranged and developed exposition. "Poetry," the final topic of the old *Rhetoric*, is now, as regards its "definition," made the subject of a special discussion (pp. 207-56) at the end of the supplementary or "overflow" volume, in which the author sets forth (controversially) his general views as to the right mode of teaching English (pp. 1-47), and then works out a series of "Select Lessons on the leading Qualities of Style". As a study in the art of Definition, as well as for its material import, this chapter on Poetry is to be noted.

The Science of Thought. By F. MAX MÜLLER. London: Longmans, Green & Co., 1887. Pp. xxiv., 664.

This book has come to hand just not too late for mention in the present No. Its main contents will be found set out in an advertisement on the wrapper. The author, in his preface, appears to think that the day is past—for a time at least—when such high philosophy as he and, we may suppose also, his friend Noire (to whom the book is dedicated) have it still in them to enlighten the world withal, has a chance of being listened to. He need be under no such apprehension. The time never was when topics like those of which he treats would have interested half as many people as will turn with eagerness now to anything new and important that he has to say about them; and he surely underrates his own (better say nothing of Noire's) power of attractive exposition. The fear indeed should be not that he will not have plenty of interested and admiring readers, but that the better-trained sort may not find his piquant observations on philosophical thinkers and philosophical questions quite deep-going and close enough. However, he has always his treasure-house of linguistic facts out of which to draw things both new and old that are of the first significance for a true appreciation of the nature of human reason; and, making it his chief business in this work—of which the motto is "No Reason without Language, no Language without Reason"—so to draw, he shall obtain in these pages, as soon as circumstances permit, the patient and open-minded consideration that is due to this outcome of a life of long and strenuous intellectual labour. He says "possibly" its final outcome; but we will rather hope that he may still be able to produce not only the other book—supplementary to the present one—which he says he has long prepared on "Mythology" as work of self-consciousness, but also his crowning piece in which he would "show that the same road which led mankind into the wilderness of Mythology, in the widest sense of the word, may lead us back to a point from which we recognise in all self-conscious Mona the Great Self, conscious of all Mona".

Vocabulary of Philosophy, Psychological, Ethical, Metaphysical: With Quotations and References. By WILLIAM FLEMING, D.D., formerly Professor of Moral Philosophy in the University of Glasgow. Fourth Edition. Revised and largely reconstructed by HENRY CALDERWOOD, LL.D., Professor of Moral Philosophy, University of Edinburgh. London: C. Griffin & Co., 1887. Pp. vii., 439.

Blots that disfigured the earlier editions of this *Vocabulary*, and that were left standing even in the third when it had come under the charge of the present editor, have now been removed, and so many alterations and additions have been made—with the help mainly of Prof. James Seth, but also of Messrs. J. Weir and W. Mitchell—that the old-fashioned work may fairly be said to appear in “largely reconstructed” form. One could wish only that the reconstruction had been still more thorough. Of *Fleming* there remains a good deal to be yet thrown away,—if also something to be restored, as, *e.g.*, the old initial topic “Abduction” (Aristotle’s ἀπαγωγή, not at all accounted for afterwards by a mere mention of ‘Apagogical’), now left out when ‘Adscititious’ (Clarke) or ‘Autocracy’ (South) might well have been spared instead by the inquiring student. The use, in fact, now left for *Fleming* could be little else than to serve as a reminder of certain words of the more unfamiliar sort, or as a repository from which some quotations might be handily culled. Even when he had swept up a number of good quotations, in the case of words with an important historical development, the Glasgow professor had a way of disposing them with such perfect inconsequence that his example was there only to be shunned. It is a pleasure to acknowledge that in the present edition a manifest effort has been made towards improvement and reform in this matter of orderly treatment; still it is only partially successful—by reason of sheer intractability in the matter taken over: compare, *e.g.*, the article ‘Cause’. And if *Fleming*’s original quotations needed a more careful sifting and ordering, it was surely time that all his second-hand ones should be dropt: there are some very odd survivals in this kind. Of the new matter, much is open to criticism. Thus, ‘Averages’ is made the occasion for giving some vague references or citations about probability and chance, hardly at all relevant to the topic; where a good distinction of Average and Mean would have been really useful to the student. Neither there, nor afterwards when ‘Chance’ is treated in its place, is any mention made of Mr. Venn’s well-known work—a serious omission when elsewhere there is so evident an intention of referring the student to good and accessible sources of information on the different topics. Under ‘Connotation,’ is it right to say that “according to Mill the only non-connotative terms are *proper names*,” or, later under ‘Term,’ to lay down without qualification that “*abstract terms are connotative only*”? The same topic suggests also another remark: ‘Connotation’ might well have given occasion for some historical note of Mill’s diversion of the word from its Scholastic usage; but indeed it is one of the most obvious deficiencies of the *Vocabulary* in any form it has yet received, that little or no attempt is made to trace the history—often so interesting and important—of the various words. When historical indications are given, they are not always as exact as they should be. Thus it is surely not “recently”—*i.e.*, only by Mr. Sully—that “the term *connate* has been employed in preference to the older term *innate*,” when Shaftesbury and others made so great a point of it long ago. But enough of this: the work might have been much more adequately and circumspectly done, and yet leave many openings for critical emendation. Even in the past, the *Vocabulary* must have been found somehow useful, or at least attractive, before it could obtain a sale of three editions; and of the

present one it may be safely said that it is much the best yet issued. Not less safe is the prophecy that the next will be a good deal better.

The Philosophy of Law. An Exposition of the Fundamental Principles of Jurisprudence as the Science of Right. By IMMANUEL KANT. Translated from the German by W. HASTIE, B.D. Edinburgh: T. & T. Clark, 1887. Pp. xxxvi., 265.

This translation of Kant's *Rechtslehre* has been undertaken by Mr. Hastie in the conviction that, as in philosophy generally, so in the philosophy of law no advance can be made except as the result of a previous "return to Kant". The Preface and Introduction, as he mentions, have already been translated (by J. W. Semple), but they are now, with the rest of the book which appears in English for the first time, translated anew.

The Christian Platonists of Alexandria. Eight Lectures preached before the University of Oxford in the Year 1886 on the Foundation of the late Rev. John Bampton, M.A., Canon of Salisbury. By CHARLES BIGG, D.D., Assistant Chaplain of Corpus Christi College, formerly Senior Student of Christ Church, Oxford. Oxford: Clarendon Press, 1886. Pp. xxvii., 304.

These "Bampton Lectures" are rather a contribution to the history of philosophical theology than to the history of philosophy directly; but incidentally they contain abundance of philosophical interest. They are founded both on study of the Alexandrians themselves and on full knowledge of the work of English and foreign scholars. In his very copious notes the author shows himself especially anxious to give reasons for his acceptance or rejection of the opinions of German historians and critics on disputed points of interpretation of texts and filiation of doctrines. The treatment is throughout in an impartial spirit. The titles of the Lectures are—(i.) "Introduction. Philo and the Gnostics," (ii., iii.) "Clement," (iv.-vi.) "Origen," (vii.) "The Reformed Paganism," (viii.) "Summary".

The Historical Basis of Modern Europe (1760-1815). An Introductory Study to the General History of Europe in the 19th Century. By ARCHIBALD WEIR, M.A. London: Swan, Sonnenschein, Lowrey & Co., 1886. Pp. xx., 616.

One chapter of this work (c. xii. "Critical Philosophy and Sensational Psychology," pp. 471-505) is expressly devoted to the philosophical development of modern Europe. Starting with Locke on one side, and Descartes on the other, the writer gives a sketch of the stages of British and Continental thought, down to the Kantian philosophy, the Common Sense School, and "the Metaphysics of Association". The present sketch is partly derived from his *Introduction to the Critical Philosophy of Kant* (noticed in MIND vi. 596).

Psychology. By JOHN DEWEY, Ph.D., Assistant Professor of Philosophy in Michigan University. New York: Harper & Brothers, 1887. Pp. 427.

This is a treatise on psychology written for class-room instruction, with full sense, as might be expected from the author, of the difficulties and obligations to be faced at the present time by any expositor of the science, owing to its peculiar relations with philosophy. Difficulties and obligations alike have from different points of view been so much insisted upon in the pages of MIND of late years, that some detailed Critical Notice of

the author's effort is due. For the present it is only noted that, after an Introduction dealing in two chapters with the "Nature and Method of Psychology" and "Mind and Modes of Activity," the division is into "Knowledge" (pp. 27-245), "Feeling" (pp. 246-346), "The Will" (pp. 347-416),—a fair and equitable disposition of the available space; and that Knowledge is treated under the three main rubrics of "Elements" (giving the exposition of Sensation), "Processes" (including Apperception, Association, Dissociation, Attention, Retention), "Stages" (Perception, Memory, Imagination, Thinking, Intuition). Experts may already form some judgment on the book from so much indication of its scheme.

La Vie et la Pensée. Éléments réels de la Philosophie. Par ÉMILE BURNOUF, Directeur Honoraire de l'École d'Athènes. Paris : C. Reinwald, 1886. Pp. viii., 452.

The eminent Orientalist has here written a book of rare and curious philosophical interest, upon which his studies in eastern lore have not been without influence. It is written in the interest of a revival of metaphysical philosophy as against mere psychologising, yet of a philosophy that not only takes account of the results of psychology but starts explicitly from a basis of natural science. An understanding of Thought, in the author's view, is not to be obtained apart from an understanding of Life, and if this already leads beyond physical to properly metaphysical consideration, the science of inorganic as well as organic nature still supplies the only real ground of the whole inquiry. Accordingly a great part of the work is taken up with a somewhat detailed "Picture of Life" upon earth (pp. 69-193), after a first analysis of life has been attained in an introductory dialogue between the author and a newly-buried friend, who is found revisiting the glimpses of the sun one day for a few hours just before his bodily form becomes finally dissolved into its constituent atoms. The dialogue is fanciful enough in its general conception, and is not always consistently carried through, yet is managed on the whole with good dramatic effect, and is made to serve the author's purpose of preliminary exposition both strikingly and well. In the "Picture" that follows, the course of the development of plant and animal life in its varied forms is traced, on the one hand in relation with general cosmical conditions, and on the other with a view to the appearance of man as its highest term (thus far), since it is in connexion with the thinking nature of man that the questions of philosophy take their rise. These are then treated in a second part, "Man, Thought, God," in which passage is made from consideration of the living human organism as it gradually assumes form, through a survey of the conditions and products of human feeling and thought (with death as limit), to a general speculative conclusion on the subject of God and the world. The author comes here to rest in a sort of Spinozistic pantheism, after having dealt, in the body of his work, with the facts of life and thought—or at least the facts of life—in the spirit rather of Leibniz's monadology. Not that there he does not pursue a line of his own, starting from assumptions and passing to conclusions which he opposes to those of Leibniz; yet their main conceptions have an unquestionable affinity, and it is in the author's thorough-going application of the monadic notion that the chief interest of his work lies. Explaining life, at whatever stage, by the organising action of a "central atom" in relation with a group of other atoms of lower degree—action which he finds better expressed by the word "analysis" than evolution, as applicable equally to all that goes on in the phase of thought (from which indeed it is borrowed)—he concerns himself specially with, the facts of generation,

and finds in these the clue to the question of an after-life. The central atom, when dissolution of an organised body (that is, distribution of its elements) takes place some time after the change that we denominate death, is there ready to begin anew the work of self-incarnation; but, just as the (already so far incarnated) sperm-animalcule of a dog, though it found its way to the ovum of a sheep, can work no effect upon it, so the simple "central atom" of any grade, having acquired a certain modification of character in the course of its last life-experience, must be placed in new and suitable circumstances before re-incarnation can go forward. By a series of cosmic "revolutions," of which the author thinks the geological record bears evidence, such new conditions have been provided in the past for the progressive development of living things through all grades up to man; and the indestructible "central atom" of a man who has lived, after having gone through previous lives of lower degree, besides still earlier development into that condition that first fitted it to become central in a living organism, has now to wait till a new cosmic "revolution" gives it the opportunity of entering upon a somehow higher life. It is here that the influence of eastern ideas is apparent in the author's speculation, but he himself notes how his conception, which he seeks to develop in view of the facts of modern science, varies from the old doctrine of metempsychosis. There is much in his whole theory that is left vague and undetermined, not to say that it involves what seem obvious inconsistencies. Thus, on the one hand, he speaks of the central atom in man as having reached the stage of "thinking atom," and goes far at times towards making a really philosophical analysis of human reason; yet, on the other hand, he does not hesitate to explain thought, as well as feeling, in man as the resultant of atomic grouping and to speak of it thereupon (however its effects may remain capitalized in the constitution of the central atom) as ending for the individual with the death of the body; from which point of view, also, he proclaims with the utmost emphasis that Thought is a mere accident in the universe. The inconsistency seems sufficiently marked, and generally, as before suggested, the final view of "God and the World" appears to hang little together with the doctrine of the body of the work. Nobody, however, that takes up the book will easily lay it down before the end is reached. It is a record of genuine search for light on the highest topics of human concern, and is written throughout with great spirit and force.

Les Phénomènes Affectifs et les Lois de leur Apparition. Essai de Psychologie générale. Par FR. PAULHAN. Paris: F. Alcan, 1887. Pp. 163.

This psychological monograph is a perfectly consistent attempt to apply to the phenomena of feeling the doctrine that all consciousness is an unessential accompaniment of certain links in the physiological processes that constitute the life of the nervous system, all of which processes can be reduced to the type of reflex action. The author recognises (p. 13, note) the idealistic objections to this doctrine, but, while reserving the general philosophical question, declares his opinion that these objections can be answered, that ultimately every psychological problem is a problem of physiology, mental states being the signs, physiological processes the thing signified. Man, in his view, is a combination of systems not completely harmonised, "a sort of machine, ill finished or a little out of order, which, receiving impressions from without, dissolves them and synthesises them by combinations of numerous internal wheels, reacting so as to augment in a certain measure the systematisation of the external world along with its own". Consciousness is a sign of the imperfect working of the machine, and "affective phenomena," being less "systematised" than intellectual phenomena, are signs of a more considerable imperfection or "trouble" in

the working. As indicating "incomplete organisation of a tendency," feeling is a defect; though it may at the same time be a sign of advance of organisation in relation to some former state or to some other organism. The two primary conditions of feeling are (1) "inhibition of a tendency," or a check to the completion of some reflex action, (2) multiplicity of accompanying phenomena. Besides these "necessary but insufficient" primary conditions there are certain secondary conditions, *viz.*, "force and persistence of the inhibited impulse, relatively abrupt appearance and relative inco-ordination of the phenomena, tendency to invade the whole of consciousness." These need not all be present at the same time, but if all are absent there is no feeling. According to the distribution of these conditions the feelings are divided into three classes:—i. Passions, Sentiments, Impulsive Affections, Affective Signs, ii. Affective Sensations (or sensations felt as pleasure or pain,—Mr. Spencer's "presentative feelings"), iii. Emotions. In the third class must be placed "pleasures and pains," but in a division by themselves. "Pleasure is the result of an increasing systematisation, pain is the result of a decreasing systematisation." "Passions" are the intensest of persistent states of feeling; "sentiments" being merely the same phenomena reduced to a less degree of intensity. "Emotions" are distinguished by their less persistence and greater abruptness of appearance (the crises of a "passion," for example, are "emotions"), by the great multitude of accompanying phenomena, especially physical phenomena, such as derangement of circulation, &c., and by their "complete absorption of the psychical forces". The "impulsive affections" and "affective signs" of the first class of feelings are more and more faint "affective substitutes," continually approximating to those last and faintest "intellectual substitutes," the psychological characters of which have never been accurately described. The intenser phenomena of the second and third classes fade off into similar vague states. From these approximating vague states, as from a common root, the intellectual and emotional phenomena arise in their distinctive classes, like animals and plants from primitive forms that are neither. The book is divided into three chapters—(1) "General Law of Production of Affective Phenomena," (2) "The Conditions of Production of the different Classes of Affective Phenomena," (3) "The Laws of Production of Compound Affective Phenomena". All these chapters are full of good and ingenious psychological analysis in detail.

Une Visite à la Salpêtrière. Par J. DELBOEUF. Extrait de la *Revue de Belgique*. Bruxelles: C. Muquardt, 1886. Pp. 49.

This extremely interesting account of observations on hypnotic patients at the Salpêtrière, made by M. Delboeuf, in company with MM. Binet and Féré, supplements the work noticed in the last No. of *MIND*, p. 144. The author has contented himself, he remarks, with relating what he saw, mixing only a few reflections with his narration. All these "reflections" are very valuable suggestions for further inquiry. In particular, M. Delboeuf has been able, by an application of his own studies of sleep and dreams, to get for the first time evidences of memory of experience in the hypnotic state. The condition is that the last act of the hypnotic "dream" shall be the first of waking (p. 41). It is impossible, he says (p. 33), to be too circumspect in judgments on hypnotic phenomena; some of the more mysterious of which—such as the supposed action of the will across space without physical conductor—he suspects may be explained by "coincidences, auto-suggestions, complaisances in observation," or "unconscious divination of what is expected".

Discussioni gnoseologiche e Note critiche di FRANCESCO BONATELLI, Socio corr. del R. Istituto Ven. di Scienze, Lettere ed Arti. Venezia: G. Antonelli, 1885. Pp. 197.

This is a series of hostile criticisms of the doctrine of "the relativity of consciousness" from Protagoras onwards, with special reference to Mr. Herbert Spencer. In opposition to Mr. Spencer's doctrine of relativity the author finally quotes the following sentence from *First Principles*:—"An ever present sense of real existence is the very basis of our intelligence". These words, he says, repeat in a somewhat different form the doctrine of Rosmini that "the idea of *being* ever present is what constitutes intelligence". He leaves it to others to determine how this "higher conception of intelligence" can be reconciled with the doctrine of relativity.

Die Psychologie Mendelssohn's aus den Quellen dargestellt und kritisch beleuchtet. Von Dr. LEOPOLD GOLDHAMMER. Wien: Ch. D. Lippe, 1886. Pp. 76.

This is an exposition followed by a criticism of the psychology of Moses Mendelssohn, whom the author regards as having been, by his mediation between the Leibniz-Wolfian and the English philosophy, a predecessor of Kant. He takes occasion to point out the importance of Mendelssohn as a writer, as a representative of the "Aufklärungsphilosophie," and as an aesthetic critic.

Grundlagen zu einer Ethik. Von Dr. RICHARD VON SCHUBERT-SOLDERN, Privatdocenten der Universität Leipzig. Leipzig: Fues (R. Reisland), 1887. Pp. 168.

After criticising (1) the Kantian ethical principle of "internal authority," which is found to be unfruitful because merely formal, (2) the principle of "external authority," which is found not to be an ultimate principle, (3) the doctrine that "insight" is the characteristic of moral action, which is found to presuppose an end not given in mere insight by itself (Introduction, pp. 1-26), the author proceeds to work out some of the preliminaries to an ethical doctrine of his own (pp. 27-168). The result of the whole is that there can be no "absolute" but only a "relative" ethics. Ethical rules bind only those who have an interest in the end to which they point out the means; that is, they depend for their binding force on some pleasure. This pleasure need not be egoistic, but may be the satisfaction felt in the pleasure or welfare of others. "All actions that have their spring in the general welfare, in the general love of humanity, are called, pre-eminently, moral actions." Altruistic presuppose egoistic pleasures. Society rests on a mixture of egoism and altruism; and since each factor for itself would demand the same social order, it is impossible to say how much each has contributed to the actual result. Altruism will constantly increase, but it is doubtful whether it will ever entirely conquer egoism.

Die Philosophie des Heraklit von Ephesus im Lichte der Mysterienidee. Nebst einem Anhang über heraklitische Einflüsse im alttestamentlichen *Kohélet* und besonders im *Buche der Weisheit*, sowie in der ersten christlichen Literatur. Von Dr. EDMUND PFLEIDERER, Prof. der Philosophie in Tübingen. Berlin: G. Reimer, 1886. Pp. ix., 384.

The author's main thesis is that Heraclitus received the philosophic impulse not from previous philosophy but from religious ideas. In his general view and method, as he points out, he follows Teichmüller, but differs from him in holding that it was principally the native Greek

mysteries, not Oriental religious ideas, by which Heraclitus was influenced. The result is that the system of the Ephesian no longer presents itself as a "gloomily resigned pessimism," but as an "optimism of reason," and may almost be regarded as "the first speculative attempt at what has since been called a theodicy" (p. 31). The exposition of the system in the light of this view is followed by an appendix (pp. 255-352) in which the author seeks to demonstrate an influence of Heraclitus on the books of *Ecclesiastes* and the *Wisdom of Solomon*. In a supplementary note (pp. 365-382) he further contends that this influence is perceptible in the earliest Christian documents, and especially in the fourth gospel.

Geschichte der Christlichen Ethik. Von Dr. W. GASS. Zweiten Bandes erste Abtheilung. Sechzehntes und siebzehntes Jahrhundert. Die vorherrschend kirchliche Ethik. Berlin : G. Reimer, 1886. Pp. xvi., 372.

In the absence of the earlier and later parts of this work it is impossible to say what is its character as a whole. The present volume is concerned exclusively with the theological as distinguished from the philosophical ethics of the 16th and 17th centuries. After an introduction on "Humanism and the Reformation" (pp. 1-45), the ethical doctrines of the major and minor figures of the Reformation, the Jesuits and Jansenists, the Mystics and Pietists (Catholic and Protestant), and the smaller religious communities are successively described. There is a brief appendix (pp. 368-372) on the ethical doctrine of the Greek Church.

Versuch einer concreten Logik. (Classification und Organisation der Wissenschaften.) Von Dr. THOMAS G. MASARYK, Professor an der Böhmisches Universität in Prag. Wien : C. Konegen, 1887. Pp. xvi., 318.

This is the second (revised and enlarged) edition of a work which was published a year ago in Bohemian. By "concrete logic" the author understands what is ordinarily called "doctrine of method". After an introduction (pp. 1-10), the whole work is divided into four books :—i. "Classification of the Sciences" (pp. 11-39); ii. "The Organisation of the Sciences" (pp. 41-68); iii. "System of the Special Sciences" (pp. 69-246); iv. "Conception of Philosophy (= Metaphysics)" (pp. 249-304). The sciences are grouped into "practical" and "theoretical," and these last again into "abstract" and "concrete". In this division as in the hierarchy of the "abstract sciences" (pp. 71-187), the author follows Comte, differing from him chiefly in claiming for psychology the position of an independent science. Comte's classification is defended (with some concessions) against Mr. Spencer, and Mr. Spencer's classification criticised (pp. 34-38). The author notes a certain "sociological colouring" of his own work, and explains it by the circumstance that sociology is the science in which (together with psychology) his special interests lie. He has devoted much attention to English thinkers, and English influence is evident throughout. Altogether the book is founded on wide study, and in detail is accurate and impartial. The author proposes following it up by a more extensive work.

Religionsphilosophie. Von GUSTAV TEICHMÜLLER, ordentl. Professor der Philosophie an der Universität Dorpat. Breslau : W. Koebner, 1886. Pp. xlvi., 558.

Prof. Teichmüller's object in this work is by a criticism of all possible religions, or "logical chemistry of the religious life," to prepare the way for a new "Christian philosophy". In Part i. of his book ("Foundations,"

pp. 1-110), he arrives at the following classification of religions :—(1) Projective Theology, (2) Pantheistic Religions, (3) Christianity. The remaining two parts (ii. "Projective Religions," pp. 111-354 ; iii. "The Pantheistic Religions," pp. 355-541) have for their purpose to expound and criticise the forms of religion classified under the first two heads. Of the "projective religions" there are two chief forms—"the religion of fear" and "the religion of sin" or "of law". Pantheism has three chief forms—the religions "of action," "of feeling" and "of thought". The projective religions, attacked by criticism, disappear, and the "transitional form" of Atheism or Positivism passes over into Pantheism. Since the three Pantheistic religions in their turn dissolve under criticism, all that remains for us is either to become "atheists of the second power" or else go on "to the third and last stage of religious culture, to the philosophy of Christianity". In order to set free the religious truth in Christianity from its "Hellenic fetters" of Platonic Idealism, a "new philosophy" is required. "The peculiarity of the new philosophy rests on the distinction of consciousness from the function of cognition" (p. xxii.). Consciousness, like the motion of a body, is capable of all degrees, while objects of cognition, like bodies in motion, remain the same. In consequence of this distinction, philosophy as a mere affair of cognition no longer swallows up the mind in itself, "but as a member in a system of co-ordinates recognises the remaining functions of the mind, also the *Ego*, as independent powers".

Die italienische Philosophie des neunzehnten Jahrhunderts. Von Dr. KARL WERNER. Fünfter Band: Die Selbstvermittlung des nationalen Culturgedankens in der neuzeitlichen italienischen Philosophie. Wien : G. P. Faes, 1886. Pp. xi., 427.

In this, the fifth volume of his work on the Italian philosophy of the 19th century (for the first four volumes, see *MIND* x. 479 ; xi. 132, 447), Dr. Werner treats of special or applied philosophy under the heads of (1) "Nature-philosophy and Æsthetics" (pp. 3-200) ; (2) "Psychology and Pedagogics" (pp. 201-231) ; (3) "Ethics and Jurisprudence, Doctrine of the State and of Society" (pp. 233-347) ; (4) "Philosophy of History" (pp. 349-378) ; (5) "History of Philosophy" (pp. 379-420). The present volume has the merits of its predecessors ; but as it is even more exclusively expository, it does not offer occasion for detailed remark. By way of criticism of the doctrines expounded, the author indicates that what is required for the completion of the national thought that the philosophers of Italy have been struggling to express, is the theistic and Catholic idea.

Das Problem der Continuität in Mathematik und Mechanik. Historische und systematische Beiträge von Dr. FERDINAND AUGUST MÜLLER, Privatdocent der Philosophie an der Universität Giessen. Marburg : N. G. Elwert, 1886. Pp. iv., 123.

Leibniz's "law of continuity" being, in the author's view, the point of most intimate connexion of the Critical with the Leibnizian philosophy, he has set himself to trace the development of this and the related conceptions in Leibniz and Kant. Leibniz made an advance on Descartes by placing the idea of permanence or substance in action instead of extension ; but his idea of substance was taken from the *Ego* regarded as active, and then applied to matter ; and, generally, there was in Leibniz a mixture of mathematical with dynamical and of these with psychological conceptions. Kant destroyed for ever the conception of "mental substance," and for the first time separated mathematics from dynamics. The doctrine of the conservation of energy in which "the dynamical unity of nature" is now

expressed grew up, the author seeks to show, on Kantian ground, and is an expression of what is affirmed in Kant's "analogies of experience"—"substance, causality and reciprocity". "The law of the conservation of energy signifies conservation in reciprocal action."

In Sachen des Spiritismus und einer naturwissenschaftlichen Psychologie. Von A. BASTIAN. Berlin: Nicolaische Verlags-Buchhandlung (R. Stricker), 1886. Pp. xx., 216.

The present work is closely connected in subject with the author's immediately preceding book, noticed in MIND xi. 446. The first part of it is occupied with primitive and later animism, doctrines of transmigration, "convulsionary" religious sects, "occult philosophy," &c., in their relations to modern Theosophy and Spiritualism. From p. 137 onwards the author expounds again with all his accustomed learning and variety of citation his doctrine of Folk-psychology as natural science.

Das Körperliche Gefühl. Ein Beitrag zur Entwicklungsgeschichte des Geistes. Von Dr. EUGEN KRÖNER. Breslau: E. Trewendt, 1887. Pp. viii., 210.

The purpose of this book is to show that, "both phylogenetically and ontogenetically," "emotional tone," i.e., feeling regarded as pleasurable or painful, is not something secondary, but is the primitive basis out of which all other parts of the mental life are successively developed. "Feeling," in this sense, is best called "corporal feeling," because it always expresses directly the promotion or checking of bodily function. By way of distinction, the "true feelings" of the Herbartian school may be called specifically "mental". "Feeling in the special sense," or "emotion," depends on "representations," which, according to the true "genetic" order, occupy an intermediate and not a fundamental position—such as the author finds to be accorded to them, expressly or tacitly, by all former psychologies. He regards it as another defect of all former psychologies—at least of all those he discusses—that, while employing the "descriptive" and the "analytical," they neglect the "genetic" method. The new method and doctrine are to be applied to all psychological problems in the manner suggested by Haeckel's dictum, that the history of the individual is an epitome of the history of the race. The true statement of the psychological problem of perception, for example, is found to be: "How, out of pure feeling (Gefühl), that is to say, the consciousness of well- or ill-being, does there develop itself first an untuned feeling (Empfindung), and, further, a relation of the same to external objects?" The volume is divided into an introductory historical section (pp. 1-27) and two others, of which the first deals with "general bodily feeling" ("Das Gemeingefühl," pp. 28-138), the second with the feeling that accompanies the functioning of the organs of special sense ("Das sinnliche Gefühl," pp. 139-206). Phylogenetically as well as ontogenetically, the second kind of feeling—by which we are to understand, as before, emotional tone, not specific sensations as such—is developed immediately out of the first, and the boundary between them cannot be exactly drawn. In a future volume the author proposes to deal more particularly with "the biological significance of corporal feeling".

Die deutsche Aesthetik seit Kant. Von EDUARD VON HARTMANN. Erster historisch-kritischer Theil der Aesthetik. 5 Lieferungen. Berlin: C. Duncker (C. Heymons), 1886. Pp. xii., 584.

This new work by Von Hartmann appears from the first in the cheap edition of "Selected Works," of which it forms parts 8-12. As is

indicated in the sub-title, it is preliminary to a constructive treatise on *Æsthetics*. The author's objects are, (1) to trace modern æsthetic theories to their origin in Kant's *Kritik der Urtheilskraft*, and (2) to supplement former histories by accounts of some less-known German writers. In Kant he finds not only the origin of all scientific treatment of æsthetics, but also of each single direction of thought that has been followed up in Germany. Book i. (pp. 1-362) gives an account of the historical development of general æsthetic doctrine according to the author's scheme. Book ii. ("The Development of the most important Special Problems," pp. 363-580) is divided as follows:—I. "The Contrary and the Modifications of the Beautiful," 1. "The Ugly," 2. "The Sublime and its Contrary," 3. "The Comic," 4. "The Tragic," 5. "The Humorous". II. "Disputed Questions," 1. "The Place of Architecture in the System of the Arts," 2. "Idealism and Formalism in the *Æsthetics* of Music," 3. "The Significance of the Arts of Acting and Dancing," 4. "The Classification of the Arts," 5. "The Combination of the Arts".

Grundriss der Geschichte der Philosophie. VON KARL CHRISTIAN FRIEDRICH KRAUSE. Aus dem handschriftlichen Nachlasse des Verfassers herausgegeben von Dr. PAUL HOHLFELD und Dr. AUG. WÜNSCHE. Leipzig: O. Schulze, 1887. Pp. xiv., 481.

This volume, composed in 1829, but now first published, is not the complete History of Philosophy projected by the author, but forms what was to have been the second part of his whole work. After an introduction (pp. 1-32) it is divided into three "chief Parts," the first (pp. 33-174) treating of ancient, the second (pp. 174-227) of mediæval, the third (pp. 228-478) of modern philosophy. The present volume was to have been preceded by a general theory of history of philosophy and its place among the sciences, and followed by estimates of the philosophers whose systems are expounded. Of these first and third parts only some fragments are in existence; but from the indications given we may infer what would have been the general character of the more extended treatment. Krause is dominated by the idea of human history as an organic whole in which the history of philosophy is included. History of philosophy, as well as general history, has certain stages of development that follow one another according to assignable laws. First there was a "golden age" in which philosophy and all the sciences formed an organic unity of knowledge. From this age a tradition has been handed down to later ages. It has been the problem of metaphysical systems to reconstruct the primitive unity of knowledge, but all have hitherto succumbed to scepticism. The problem itself, however, is not insoluble; and it is only in relation to a system of "absolutist" metaphysics impregnable to scepticism that the systems of the past can be definitively judged. Krause's *Wesenlehre* claims to be such a system. The "pure history of philosophy," which alone has been completed, is, however, to be an impartial exposition of all systems, including the *Wesenlehre* itself.

Die philosophische Weltanschauung der Reformationszeit in ihren Beziehungen zur Gegenwart. VON MORIZ CARRIÈRE. Zweite vermehrte Auflage. 2 Theile. Leipzig: F. A. Brockhaus, 1887. Pp. xi., 419; vii., 319.

This standard work, which has long been out of print, now appears in a second and enlarged edition. While incorporating the results of later study, the author has avoided the kind of rewriting that would have tended to destroy the original character of the book (first published in 1846). In general arrangement, as well as in the estimates of particular figures, it remains substantially the same. Critical Notice will follow.

Historia Philosophiae Graecae. Testimonia Auctorum conlegerunt Notisque instruxerunt H. RITTER et L. PRELLER. Pars prima septimum edita. Physicorum Doctrinae recognitae a FR. SCHULTESS. Gothae: Sumptibus Fridr. Andr. Perthes, 1886. Pp. viii., 180.

First published in 1838, revised by Preller for a second edition in 1857, and then issued in successive editions without further change till taken in hand by Teichmüller for a sixth in 1878, the collection of Greek (or Latin) extracts, with Latin notes, that has served students of Greek philosophy so well through half a century, here begins, in a seventh edition, to be brought up fully to the level of the latest and best research in the subject. In no department has later inquiry been so active and fruitful as in that of the early "Nature-philosophy," and it is to this that the new editor (known by his Platonic studies) has for the present confined his labours, without giving any definite promise as to the remainder of the work. The part is increased by about half as much matter again as it contained on finally leaving Preller's hands, and otherwise appears in a considerably altered form. Preller's division of Ionics—Pythagoreans—Eleatics and Empedocles, substituted for the original division into supporters of a single mutable principle and supporters of one or more immutable principles, now gives place to a general ordering of the "*Physici*" in chronological succession, with the result that Empedocles is separated from the Eleatics by Anaxagoras, and is now followed by Leucippus and Democritus, with Diogenes, Archelaus and Hippo bringing up the rear. The additions (or substitutions) are made pretty uniformly throughout, and affect the extracts as well as the notes, though of course it is in the latter that the remarkable thoroughness of the editor's work becomes most apparent. Marginal indication of the subjects of paragraphs is a new and very welcome feature.

RECEIVED also :—

- G. S. Fullerton, *The Conception of the Infinite*, Philadelphia, J. B. Lippincott & Co., pp. vii., 131.
- A. Alexander, *Some Problems of Philosophy*, New York, Charles Scribner's Sons, pp. 170.
- A. Spir, *Esquisses de Philosophie Critique*, Paris, F. Alcan, pp. xi., 189.
- Ch. Féré, *Sensation et Mouvement*, Paris, F. Alcan, pp. 164.
- L. Natanson, *La Circulation des Forces dans les Êtres animés*, Paris, Bureau des deux Revues, pp. 74.
- E. Morselli, *La Filosofia Monistica in Italia*, Milano-Torino, Dumolard, pp. 42.
- C. Sigwart, *Vorfragen der Ethik*, Freiburg i. B., J. C. B. Mohr (Paul Siebeck), pp. 48.
- R. Eucken, *Zur Würdigung Comte's u. des Positivismus*, Jena, pp. 28.
- F. V. v. Wasserschleben, *Die drei metaphysischen Fragen nach Kant's Prolegomena*, Berlin, C. Duncker (C. Heymons), pp. vii., 115.
- H. Was, *Plato's Symposium, Eine Erotische Studie*, Arnheim, P. Gouda Quint, pp. xi., 103.

NOTICE of some of these will follow.

VIII.—NOTES AND CORRESPONDENCE.

ON MR. WARD'S "PSYCHOLOGICAL PRINCIPLES (III.)".

In Mr. Ward's article on Psychological Principles, in the last number of MIND, he illustrates the imperfections of present Psychology, as regards the use of terms, by a copious reference to my modes of expressing the fundamental conceptions of the science. It will be long ere we attain an unimpeachable phraseology for the highest generalities of the mind, and none of us can be too thankful for the criticism that shows us our weak points. At the same time, it is not in human nature to acknowledge errors wholesale, without an attempt at palliation; and I must endeavour to justify, as far as may be, some at least of the expressions that Mr. Ward refers to.

One thing I am free to admit, namely, that in approaching the subject at the commencement, I use a variety of terms that are not strictly defined, and treat as nearly synonymous words that have a real difference of meaning. In the first statement of notions that are new to the reader, it is scarcely possible to preserve exactness; at all events, there is another condition to be attended to, namely, to be suggestive. It would be well if these two things could be combined—perfect propriety in the use of terms, and the suggestion of meanings requisite to some faint comprehension of the subject-matter. I, for one, however, confess myself unequal to the reconciliation of the two objects. I despair of giving an accurate conception of the fundamental constituents of mind at the outset; I am only too glad if I can give an approximation to begin with, and gradually improve upon the statement, so as to end with just and definite notions of all essential matters. Thus it is, that I take the definition of the wide term Consciousness as the concluding topic of my larger work.

Of course, this is a wholly indefensible position, if the vagueness allowed at the outset is maintained all through. I can, however, show that this is not the case with several of Mr. Ward's instances. He is especially severe upon my use of the word 'Sensation' in the classification of Feelings. He says very truly that I divide Feelings into Pleasurable, Painful and Indifferent, and again into Sensations and Emotions. He asks what is the connexion between these quite distinct classifications. I fail to see the relevancy of the question, inasmuch as any genus may be broken up into species on different lines. The real point of the criticism I take to be, that Sensations are pre-eminently involved with our Intelligence, which would seem to make the classification very absurd. Mr. Ward should have done me the justice to remark how careful I am, from the very beginning, to state the double inclusion under Sensations; not to speak of the whole method of the detailed description, which gives the doubleness an emphasis that can hardly be mistaken. In the Introduction to *The Senses and the Intellect*, this expression occurs:—"OUR SENSATIONS, as will be afterwards seen, come partly under Feeling and partly under Thought". Again, in the Introduction to the *Manual*, which contains some instances of the unqualified use of Sensation, there is this corrective—"Sensation, which contains a department of Feeling". It is this department that allows Sensations and Emotions to be coupled as exhausting the region of Feeling. These give the sub-genera of Feeling, while the other division exhibits the final classification of the different species of Sensations and Emotions. Thus, among the Sensations of Hearing (Emotional) are included Pleasures, Pains and states of Neutral excitement.

The criticism that most excites my wonder is found in the following expressions. "Psychologists seem to be aware of no confusion when they talk indifferently of *states* of mind, *contents* of mind, *acts* of mind : treat the same fact now as a process, now as a product." Again, quoting my general analysis of mind, Mr. Ward remarks—"We are told of three properties or functions of mind, as if there were no difference between predicating *property* and *function*". I have already given an apology for using, at the outset, a variety of terms that cannot be defined at that stage. But I can quote Mr. Ward himself, as acknowledging the very same difficulty in his own treatment. This is the introductory sentence on Feeling in his *Encyclopædia Britannica* article :—"We might now proceed to inquire more closely into the character and relations of the three *states, modes* or *acts* of this subject". Here he appends the following foot-note. "It is useless at this point attempting to decide on the comparative appropriateness of these and similar terms, such as 'faculties,' 'capacities,' 'functions,' &c." That is to say, he is aware that he must find access to his readers' minds by the use of whatever terms are familiar to them, and leave precise defining to a later stage. This is exactly my justification. Yet he goes on harping on the same theme, as when he says, "*states, actions* and *powers* are certainly not congruent *conceptions*". I should not say they were.

Another alleged fault in my exposition is to misuse the ambiguous term 'Consciousness'. It seems to me that this is about the least ambiguous word in Psychology : its width of comprehension is a safeguard against its abuse. But Mr. Ward makes out a fallacy of division in calling a sensation a conscious state. For the life of me, I can see no harm in this ; nor would I venture to say that a sensation is *not* a conscious state, not a mode of consciousness at all. I may be the victim of self-conceit, but I fancy I can always keep myself straight with the word 'consciousness' ; it is *self-consciousness* that floors me, and I am generally on my guard against using the combination. The difficulty, however, lies with 'self,' and not with consciousness.

The sort of error that I am charged with, in the handling of consciousness, is the confounding the powers of the Intelligence, as Discrimination and Assimilation, with the materials discriminated and assimilated. Of course the sensation of blue is a conscious state ; the act of distinguishing blue from violet is also a conscious state, but they are not both in the same category ; and if, like Mr. Ward, I huddle, at the outset, *states, modes* and *acts*, I trust to the detailed exemplification of Sense on the one hand, and of Intellect on the other, to correct all essential errors of confusion of the kind attributed to me.

The difficulties in connexion with Consciousness are, to my mind, greatly surpassed by those that beset Feeling. Mr. Ward, in his article in the *Encyc. Brit.*, deserves the highest credit for his endeavour to clear up this word ; and I freely allow that he has achieved considerable success. At the same time, it takes no small effort to follow his nice distinctions ; and he cannot help being aware that a feeling very readily passes into a thing of intellect—namely, by being subject to identification and discrimination. These powers deserve to be named as distinct facts ; but without the feelings to be operated upon they are non-existent. Nay more, both the change accompanying discrimination, and the resuscitation of agreement, besides their intellectual result, give a more or less considerable shock of consciousness, which I cannot rank with either Intellect or Will, and therefore it must be under Feeling or nowhere.

If instead of culling a number of phrases out of their context, Mr. Ward had followed the preliminary sketch of the fundamentals of the

mind at the opening of the *Senses and Intellect*, he could have marked exactly the points where I went out of the right path, in separating Feeling, Volition and Intellect. He would have seen that I was seriously oppressed with the difficulty of assigning the relationship of Feeling and Intellect, and, at all events, gave a perfectly unambiguous statement of that relationship in the following sentences :—

“In proportion as a mental experience contains the facts named discrimination, comparison and retentiveness, it is an Intellectual experience ; and in proportion as it is wanting in these, and shows itself in pleasure or pain, it is of the nature of Feeling. The very same state of mind may have both an intellectual side and an emotional side ; indeed, this is a usual occurrence. And, like many things that are radically contrasted, as day and night, these two distinct facts of our nature pass into one another by a gradual transition, so that an absolute line of separation is not always possible—a circumstance that does not invalidate the genuineness of their mutual contrast.”

I can scarcely undertake to improve upon the clearness of this statement ; and if Mr. Ward had inserted his critical knife at the defective transitions, I should have been greatly obliged to him.

Mr. Ward's remarks upon the misuse of Feeling in connexion with the germ of the Will, I cannot detach sufficiently from the doctrine itself, to say how far his cavil is well or ill-founded. My belief is that none of those mistakes that he dwells upon are really involved in the exposition. The whole subject has its difficulties, which will remain after the phraseology is amended to Mr. Ward's heart's content. I should prefer being challenged upon the substance and meaning of the general doctrine of Will ; and will remain for the present under the accusation of having used improper and confusing language in relation to it. I shall of course take care, in any re-statement, to benefit by the criticisms now passed upon the wording of the illustration.

A few words now upon the proposed use of Attention. Granting that the meaning intended to be expressed has all the importance attributed to it, we must yet be aware of what is involved in inducing a hundred millions of people to surrender the negative word ‘inattention’ when the situation occurs wherein it is at present employed. The name ‘temperature’ saves us from the awkwardness of employing ‘heat’ for all degrees down to the bottom of the scale. It was some attempt of this nature, to use heat in connexion with snow, that drew out the Irishman's question—‘How many snow-balls will it take to boil a kettle?’ So, a word corresponding to Temperature for Heat and Cold, or to Magnitude for Large and Small, has to be adopted or invented, as the only way to avoid a hopeless collision with popular usage. We may of course have one meaning in general circulation, and another in the schools of Psychology. Such diversities are frequently unavoidable ; but there is a peculiar aggravation in the conflict of usage in this instance, and the sooner we get out of it the better.

Mr. Ward repeatedly emphasises the want of coincidence between Attention, even in his enlarged view, and Consciousness. I should like, for my own satisfaction, that he would attempt a *positive* definition of the part or parts of consciousness excluded from Attention. “Attention,” he says, “will cover part of what is meant by consciousness,—so much of it, that is, as answers to being mentally active, active enough at least to receive impressions.” Now this negative definition should be supplemented by something positive. At least, we might have a few exemplary or representative particulars, to give us a faint notion of the kind of consciousness that lies outside Attention.

A. BAIN.

ON A FEATURE OF ACTIVE ATTENTION.

I should like, in consequence of Mr. Ward's article (MIND No. 45), to be allowed a few words on an essential point. To Mr. Ward's objections in general I cannot reply, because the only answer I could make would be to confess that I have failed entirely and throughout to convey to him my meaning. I am sorry for this, because otherwise I should have valued his criticism. All I wish to do here is to attempt to clear up one point as to active attention—namely, the manner in which it may intensify sensations. The account which I adopted (MIND No. 43) was that the result is caused by a transfer of strength from an idea through blending.

If we take for example a composite smell, one of its elements may engross me directly by its strength. Again, resolving to observe and bringing the idea of one element, I may find the answering component in sensation strengthened. Or again, that component may excite ideas, its own forming the centre, and upon this we may find the sensation grow stronger. In all these cases I think the idea blends itself with the sensation, so adding strength thereto. No doubt much happens besides, but I think thus much to be essential, and I tried (as I believed) to say so (MIND No. 43, pp. 310-312).

Nor need anyone who holds that the working idea interests through pleasure be, I think, at a loss. If he should be so misled as to doubt that there are ideas of pleasure, he need not therefore cease to believe that ideas may be pleasant. Nor need he doubt that an idea, like every other psychical event, has a force which is not the same as its pleasantness. He will say, I think, that the influence of this pleasure on the sensation is another and a further question, but that here the essential point to his mind is a transfer of strength as distinct from pleasantness. But, for myself, I do *not* hold that interest must consist in pleasure, and I really did my best, though it would seem not successfully, to say so. (*Ibid.*, p. 310. Cp. 315, and 306, note.) I ought indeed to have mentioned, when, for argument's sake, I treated the interest of ideas as their pleasantness, that I did not intend that to hold good, for argument's sake, of sensations also. This, in fact, did not occur to me, and so I omitted to issue any warning to the reader.

I will only add my regret that my paper should have appeared to be a criticism on Mr. Ward individually. Nothing in it referred to him, and when the MS. left my hands I do not think that I had read one word of his writing. I have had that pleasure since, and can assure Mr. Ward that, though I think the view of Attention which he has adopted is quite inadmissible, this is far from blinding me to the solid value of his work in general.

F. H. BRADLEY.

"ILLUSORY PSYCHOLOGY."—A REJOINDER.

Perhaps I may be allowed a few words of rejoinder to Prof. Dewey's reply on this subject in MIND No. 45. I would not ask it, since plainly controversy must end somewhere, did not Prof. Dewey allege, as his reason for making no attempt to deal specifically with my objections, that I have mistaken the bearing of both his articles so completely as to render my objections irrelevant. This allegation cannot be allowed to pass unchallenged. It is entirely erroneous. I made no mistake of the kind. I did not suppose "that it was the object of one [the art. in MIND No. 41] to explain the nature of the individual and the universal consciousness, and of the other [that in MIND No. 42] to give some definite directions regarding

the application of the method to philosophy and psychology" (p. 83). If I had imagined this, I should never have taken pen in hand to reply to them. My conception of their purpose was almost identical with Prof. Dewey's present description of it (p. 88): "The article in *MIND* No. 41 was written to show that psychology could not be even psychology, much less philosophy, until the universal factor in consciousness was attended to. . . . The article in *MIND* No. 42 was written to show that transcendentalism was incomplete till it recognised that the universal content can be realised only in an individual bearer."

It was precisely against Prof. Dewey's attempt to show these things that I argued; and of course in doing so I followed his articles as closely as I could, in order to bring out what seemed to me the writer's misconception, not of English Psychology only, but also of German Transcendentalism. Had I stated what I conceived his general purpose to be, and argued against the misconceptions I supposed it to contain, it might have been plausibly, though at the same time quite sincerely, replied, that I had set up a figure of straw to contend with.

But now we see, on Prof. Dewey's own showing, what it was that he was aiming at. It was an alliance, or perhaps we may say an union, between English Psychological Philosophy and German Transcendentalism, in which the first was to supply the method, and the second "the universal factor"—whatever that may mean. No doubt some very striking philosophy was anticipated as the result. Now this idea appeared to me to involve a radical misconception of the nature of both the suggested allies; but to show this by examining what I might suppose to be Prof. Dewey's idea of their nature was not my business: it was enough for me to point out the misconceptions, confusions and self-contradictions involved throughout his pleading in favour of the alliance. I considered that, if the misconceptions were really there, they would inevitably show themselves in the pleading. I also thought that, in recommending Transcendentalism, he could hardly avoid making some of the assumptions commonly made by that which he recommended. This proved to be the case. But it was with the assumptions as made by the advocate, not as appearing in the system advocated, that I was primarily concerned.

I will now state what I suppose the chief of these misconceptions to have been, repeating that it was they and the plea founded on them which alone induced me to criticise Prof. Dewey's articles at all. I should not have cared to do so, if my notion of his purpose had been what he supposes. But the idea of an alliance or union between English Psychological Philosophy and German Transcendentalism, on the ground that both were based solely and directly on conscious experience, and the representation of this principle as at once fundamental and common to both, though too much lost sight of in application, especially on the English side, seemed to me too mischievous to sound philosophy to be allowed to pass altogether without comment.

In the first place, then, it is a great misconception to suppose, that English Philosophy when following psychological method is based solely and directly on an appeal to conscious experience. English Philosophy has always aimed at being so based, and this is the very thing which constitutes its characteristic merit. But English Philosophy, following psychological method, or, as Prof. Dewey thinks, "that way of looking at philosophical questions which is specifically English (and which, following the usual custom, I called psychological)," departs from this sound principle precisely at the point when the psychological method is adopted by it. Psychology alone, whether English or not, makes no claim to be founded directly and solely on experience, but on experience and hypothesis

together, the hypothesis of some real agency in the Subject, the ultimate nature of which is sometimes considered as still open to investigation. It is clear that some such hypothesis is necessary for it as a science, just as physical science requires the hypothesis of the reality and real agency of Matter. The English school of philosophy, on the other hand, has ever since the time of Bacon laid claim to be founded on experience alone. If this be so, then it is a serious misconception to represent English philosophy on psychological method as standing simply and solely on conscious experience. English philosophy does so, but English psychological philosophy does not.

The second misconception consists in making the very same supposition with regard to German Transcendentalism, or Transcendentalism simply, if that sounds better, seeing that all Transcendentalism is in point of fact derived from Germany; I mean the supposition that it also is based directly and solely on conscious experience, without aid from assumption or hypothesis. Down to the time of Berkeley philosophers and psychologists alike had, with few exceptions, accepted the existence of an immaterial soul or mind in some form or other, as matter of philosophical, concurrently with theological, tradition. The soul or mind was in those days conceived as a real empirical agent, only that it was not perceptible by the senses. Kant took the step of substituting for it a more shadowy, but still empirical agent, namely, a noumenal and transcendent one, which by hypothesis could not *per se* be even thought as an object of experience at all. This is the origin of what is called Transcendentalism, which is nothing but a doubly refined form of empiricism. I mean that both the soul or mind and its transcendent substitute are objects conceived on the same type as ordinary objects of pre-philosophic common sense; objects not analysed as realities into their constituent elements, but reduced unanalysed to shadows; the latter of which was at the same time placed (so it was hoped) beyond the reach of criticism, by the avowal that its nature was to be non-phenomenal itself, but to have phenomenal manifestations. Singularly enough, it was declared to be unthinkable and yet actually thought of as a real agent by one and the same theory. The Soul had been the animating reality of Man, and the Transcendent Subject was the animating reality of Man and Nature.

Transcendentalism is thus founded on an *a priori* assumption. I do not of course say that this original form of it has been retained to the present day. What I do say is, that the various forms of it at the present day have this as their common origin, and in virtue of it are founded upon an *a priori* assumption, and not upon experience simply. Transcendentalists are not conscious of it as an assumption, and that is the worst of the mischief. For in consequence they think that the form or forms of it which they themselves adopt furnish an *explanation* of the universe. They take their assumption as a vision into the heart of things. Prof. Dewey shows in his Reply that he is very hazy on the nature of assumptions. He says "to make assumptions is simply to see how facts look when some integral factor is omitted" (p. 88). If that is assumption, then what is abstraction? He mistakes abstraction for assumption.

It follows from the above, that neither of Prof. Dewey's two exhortees, psychological philosophy and transcendentalism, is based upon that principle of appealing to experience alone, which Prof. Dewey attributes to them in common. If they are to forgo that, it must be on the basis, not of their common *experientialism*, but of their common *empiricism*. Not that such an alliance need be deprecated, provided its true principle be acknowledged, and its true nature understood. If Prof. Dewey had said that English Psychological Philosophy and German Transcendentalism were alike in

basing themselves on certain common or similar assumptions, instead of saying that they were alike in basing themselves on experience alone, the statement would have been unobjectionable. An alliance on this basis might have been mutually advantageous, had it been practicable. One at least of the proposed allies was in considerable need of aid. English psychological philosophy received a deadly blow from cc. 11 and 12 of J. S. Mill's *Examination of Hamilton's Philosophy*, the chapters entitled respectively "The Psychological Theory of the Belief in an External World" and "The Psychological Theory of the Belief in Matter, how far applicable to Mind," wherein the great empiricist frankly and honestly admitted that he found himself in presence of "the final inexplicability". This was in fact an admission that the psychological theory had broken down in philosophy, as a theory seeking to give a final explication of all things by referring them to other things, after the fashion of science, might have been expected to do.

Now Prof. Dewey thinks, that the psychological theory can be restored to philosophical efficiency, if only it borrows from Transcendentalism the principle of identifying the individual with the universal consciousness, by "viewing" the former "in its finality" (MIND No. 41, p. 18). Unfortunately an individual consciousness "viewed in its finality" is not a reality capable of having experience, is not a real Subject at all, but merely a philosopher's idealisation of one. To identify the individual with the universal consciousness is to assume that all individuals are omniscient. Few Englishmen will find it easy to make this assumption.

In reality it is English Philosophy that is attacked by being identified in principle with English Psychological Philosophy, when the latter is simultaneously identified in principle with German Transcendentalism. For the double identification not only robs English Philosophy of that which is its special attribute, its foundation in experience alone, but transfers that attribute to its ancient antagonist, the *a priori* school of thought, in the person of its modern offspring Transcendentalism. There was a charming audacity about the transference, which, while it charmed, incited to a reply. If the proposed allies forgather, I thought, they shall at least not make off with their ill-gotten booty undetected.

It is doubtless in a very large measure to the natural re-action against J. S. Mill's empiricism, whether held to have broken down or not, that the recent recourse to Transcendentalism on the part of many students of philosophy in this country is owing. They did not, however, like Prof. Dewey, dream of an alliance, but took refuge in what they thought was the antagonistic principle. They saw that to appeal to empirical experience was not to appeal to experience simply; but that Transcendentalism also was at bottom an appeal to empirical experience, this they saw not. In reality the *other* of empirical experience, its explanation, or translation into philosophic thought, is not obtained by transcending it, but by analysing it. Now analysis is the work of experience simply.

Barring the writings of Salomon Maimon, a younger contemporary of Kant's, to which I have drawn attention elsewhere, my own is the only attempt, so far as I know, to base philosophy directly and solely upon experience, distinguished from empiricism, and without admitting assumptions; unless, indeed, John Grote's admirable *Exploratio Philosophica*, published in 1865, the same year as my *Time and Space*, may count as the preliminary of one. The term *philosophy* I take of course in its widest and fullest sense, in which it means the endeavour to make the Universe intelligible to human thought; not to assign its first cause, or real condition, as if it was a particular finite object, but to give a *rationale* of it, always from a human point of view, a point of view from which, not the

Unseen itself, but man's relation to it, is the last object seen, the object which occupies and limits his horizon. That I take to be what philosophy in all ages has aimed at, to understand, not to construct, the Universe, as if human logic contained the secret of its construction, or human dictionaries the Ineffable Name.

The present position of philosophy is not only a scandal to the intellectual world; it is also fraught with danger to the best interests of humanity. Until it is reconstituted, there can be no unity directing human effort: one man will be a Positivist, another a Transcendentalist, another a Materialist, and so on; while all such speculative divergences necessarily involve corresponding divergences in the practical direction of conduct. It has seemed to me that nothing else but experience, experience simply and solely, can be the basis of the required all-embracing unity, dominating but not excluding minor individual differences. And as it happens, this very recourse to experience alone as the basis of true knowledge has been the guiding idea and characteristic mark of English Philosophy, long before Transcendentalism was brought to the birth.

I pass over Prof. Dewey's counter criticism of myself, not from any want of respect for my skilful critic, but because it would far exceed my allotted limits to put the incidental statements of opinion, which my article contains, in their proper setting. If this could be done, I think I discern several points on which we should find ourselves in substantial agreement. I am far from wishing to exaggerate our differences, and on these questions have no reluctance to leave the last word with Prof. Dewey.

SHADWORTH H. HODGSON.

The following from Prof. W. James has just come:—

"Professor Stumpf writes to me that in the quotation I made from him in the last No. of *MIND*, p. 27, n., I mistranslated his words *Stelle* and *Ort* by *position*, which is properly the equivalent of *Lage* or of *Stellung*, and connotes relation to some other position, as *Ort* and *Stelle* do not. I am sorry that I failed to catch a shading of his meaning which was manifestly essential. I confess, however, that I find a difficulty in thinking of *Ort* as disconnected with *Lage*, of *place* as not implying *position*, of *locus* as independent of *situs*. Prof. Stumpf develops his view in a passage which I would gladly place before the readers of *MIND* if room could be found for it in the April No.; but it does not induce me to modify my own text." [Extract perforce omitted.—EDITOR.]

Lord Gifford, one of the Scottish Judges, recently deceased, has willed £80,000, in various proportions, to the four Scottish Universities, to be devoted to the foundation of Lectureships in Natural Theology. The terms of the bequest are sufficiently remarkable, as some extracts from the trust-deed will show. In the preamble he says: "I give my body to the earth as it was before, in order that the enduring blocks and materials thereof may be employed in new combinations; and I give my soul to God, in whom and with whom it always was, to be in Him and with Him for ever in closer and more conscious union". Out of his estate he considers himself bound to employ a certain residue for "the good of his fellow-men," and therefore desires the Lectureships to be founded "for promoting, advancing, teaching and diffusing the study of Natural Theology, in the widest sense of the term; in other words, the knowledge of God, the Infinite, the All, the First and Only Cause, the One and the Sole Substance, the Sole Being, the Sole Reality, and the Sole Existence, the knowledge of His nature and attributes, the knowledge of the relations which

men and the whole universe bear to Him, the knowledge of the nature and foundation of ethics or morals, and of all obligations and duties thence arising"; having long "been deeply and firmly convinced" that such knowledge, "when really felt and acted on, is the means of man's highest well-being and the security of his upward progress". The lecturers are to be paid out of the annual proceeds of the funds, and to be appointed for two years only, but "the same lecturer may be reappointed for other two periods of two years each, provided that no one person shall hold the office of lecturer in the same city for more than six years in all, it being desirable that the subjects be promoted and illustrated by different minds". Then follow these notable provisions:—"Fourth, the lecturers appointed shall be subjected to no test of any kind, and shall not be required to take any oath, or to emit or subscribe any declaration of belief, or to make any promise of any kind; they may be of any denomination whatever, or of no denomination at all (and many earnest and high-minded men prefer to belong to no ecclesiastical denomination); they may be of any religion or way of thinking, or, as is sometimes said, they may be of no religion, or they may be so-called sceptics or agnostics or free-thinkers, provided only that the 'patrons' will use diligence to secure that they be able, reverent men, true thinkers, sincere lovers of and earnest inquirers after truth. Fifth, I wish the lecturers to treat their subject as a strictly natural science, the greatest of all possible sciences—indeed, in one sense, the only science, that of Infinite Being—without reference to or reliance upon any supposed special exceptional or so-called miraculous revelation. I wish it considered just as astronomy or chemistry is. I have intentionally indicated, in describing the subject of the lectures, the general aspect which personally I would expect the lectures to bear, but the lecturers shall be under no restraint whatever in their treatment of their theme; for example, they may freely discuss (and it may be well to do so) all questions about man's conceptions of God or the Infinite, their origin, nature and truth, whether he can have any such conceptions, whether God is under any or what limitations, and so on, as I am persuaded that nothing but good can result from free discussion." It will be interesting to watch the fortunes and the outcome of the large-hearted man's foundations.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY. (22 Albemarle Street, W.).—The papers read since last record have been the following: In 1886—Dec. 6, "Neo-Kantianism in relation to Science," by Mr. G. J. Romanes, F.R.S.; and Dec. 20, "Malebranche," by Mr. H. W. Carr, Hon. Sec. In 1887—Jan. 10, "The Ancient Distinction of Logic, Physic and Ethic," by the Rev. A. Chandler; Jan. 24, "The Theory of Motion," by the Rev. E. P. Scrymgour, V.P.; Feb. 7, "The Monadology of Leibniz," by Miss M. S. Handley; and Feb. 21, "Recent Psychophysical Researches," by Dr. J. M. Cattell. The papers in every instance were followed by a discussion.

REVUE PHILOSOPHIQUE. — An. xii., No. 1. R. Garofalo—Le délit naturel. V. Brochard—La méthode expérimentale chez les anciens. G. Sorel—Le calcul des probabilités et l'expérience. Observations et Documents (A. Binet—Note sur l'écriture hystérique. H. Neiglick—De la méthode des graduations moyennes pour les sensations lumineuses). Analyses et Comptes-rendus. Correspondance (M. Bernheim—De la suggestion et de ses applications thérapeutiques. M. A. Bertrand—Correspondance inédite de Maine de Biran). Rev. des Périod. Soc. de Psychologie physiolog. (P. Tannery—Sur la parole intérieure. Ch. Richet—De la composition typographique et du style de quelques livres imprimés). No. 2. J. Delboeuf—De la prétendue veille somatique (i.). L. Bianchi et

G. v. Sommer—La polarisation psychique dans la phase somnambulique de l'hypnotisme. F. Bouillier—Ce que deviennent les idées. Ch. Richet—Objet de la psychologie générale. Analyses, &c. (Scotus Novanticus, *Metaphysica nova et vetusta*; J. Sully, *The Teacher's Handbook of Psychology*, &c.). Rev. des Périod. Soc. de Psych. phys. (Lauret et Duchaussoy—Sur un cas héréditaire d'audition colorée). No. 3. R. Garofalo—L'anomalie du criminel. J. Delboeuf—De la prétendue veille, &c. (fin). A. Calinon—Le temps et la force. Analyses, &c. (H. Maudsley, *Natural Causes and Supernatural Seemings*, &c.). Soc. de Psych. phys. (H. Beaunis—Une expérience sur le sens musculaire. A. de Rochas—Hypnotisme et changement de personnalité. C. Sauvaire—Hyperesthésie des sens dans l'état hypnotique).

LA CRITIQUE PHILOSOPHIQUE (Nouv. Sér.).—An. ii., No. 12. Z.—Les hypothèses cosmogoniques. A. Sabatier—Le christianisme et la doctrine de l'évolution (i.). F. Pillon—Un sermon sur le théisme chrétien. . . . Notices bibliog. An. iii., No. 1 A. Sabatier—Le christianisme, &c. (fin). C. Renouvier—Réponse à M. A. Sabatier (i.). F. Pillon—Le mysticisme apocalyptique au moyen âge. Notices bibliog. No. 2. C. Renouvier—Réponse, &c. (ii.). G. Lechalas—L'activité de la matière. . . .

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ERRATUM.—In Mr. Ward's article in MIND No. 45, p. 47, last line of text, for work read force.